TO

THE MEMORY OF MY WIFE

SUDHA DEVI, B. A.

the impress of whose love and affection the whole undertaking indelibly bears

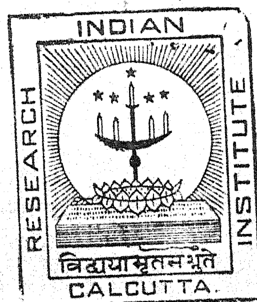
वृक्षायुर्वेदफलं मनोहरं शास्त्रतः सिद्धम् ।

INDIAN RESEARCH INSTITUTE PUBLICATIONS

Indian Positive Sciences Series—No. 1

UPAVANA-VINODA

(A Sanskrit Treatise on Árbori-Horticulture)



BY

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FOREWORD

The Upavana-Vinoda, which forms but a small chapter of Śārṅgadhara's encyclopædic work, is an interesting Sanskrit treatise on Arbori-Horticulture. This treatise represents only a branch of a much larger science the name of which alone lingers in the main heading of the chapter—*Atha Vṛkṣayurvedaḥ.* If, as we are bound to assume, the Upavana-Vinoda be only a branch of Vṛkṣāyurveda, it necessarily follows that the researchers are yet to look out for other branches of a larger body of knowledge comprehended under Vṛkṣāyurveda. This is not however to claim that this Science reached its fullness all at once. The data which may be gathered from the available sources of information rather go to indicate that the development of the knowledge of botany had proceeded on different lines before it was possible to think of compiling a Saṁhitā embodying the important results of observations and experiments carried on through many centuries. The various departments of Botany must have developed under such a common name as Vṛkṣāyurveda. As Professor Girija Prasanna Majumdar has ably shown in his informative little book, Vanaspati, Vṛkṣāyurveda became prevalent as a distinct branch of Positive knowledge as early as the Arthaśāstra of Kauṭilya expressly referring to it. The contents of Vṛkṣāyurveda as then known suggest a much smaller scope of knowledge than what turned out to be in its latest development in the thirteenth century of the Christian era.

When I undertook my work on the Positive Sciences of the Ancient Hindus, and Sir Prafulla Chandra Roy published his History of Hindu Chemistry, our common purpose was to show that mere religion or theology was not the pre-occupation of the Hindu mind. The Hindu Ṛṣi of all ages was a votary of an all-round culture, and that accordingly his interest and attention was not confined to any particular aspect of life, or of reality. In order to appreciate and to do justice ... Indian civilization, it has to be viewed correctly and inter-

It is therefore, very gratifying to me to see that a right and earnest endeavour has been made to found a Research Institute in Calcutta with the noble mission of presenting and interpreting Indian culture in its compresensive sense. This Institute which has already by its recent publications and activities attracted attention of the public and the scholarly world outside may be congratulated for opening its Positive Sciences Series with the Upavana-Vinoda, critically edited by Professor Majumdar with valuable introduction, an English translation and useful notes. Nothing could be a pleasanter beginning.

Mr. Majumdar who is a trained botanist and who commands a wide acquaintance with the Indian texts bearing on the subject of plants and the knowledge of plants, is a competent scholar for undertaking a responsible task as this. It pleases me to note that he has devoted many years of patient study to the history of Indian Civilization in a plant-perspective. His Vanaspati and two articles on Food and Dress published in the Indian Culture (nos. 2 & 3) sufficiently indicate his wide range of information on the subject. The text is well introduced by the editor with elucidation of each item, glory of trees, selection of soil, classification of plants and the rest with an additional information brought to light from the ancient texts, inscriptions and foreign accounts. It may be hoped that this publication will be received as a welcome edition of a genuine Hindu treatise on Arbori-Horticulture.

Calcutta
1st January, 1935

Brajendra Nath Seal

PREFACE

The text and translation of the Upavana-Vinoda presented in the following pages with introduction, critical notes and appendix containing some additional texts bearing on the subject, is only a bye-product of a systematic investigation undertaken by the author into the Indian knowledge of Plants and Plant-life. The text of the Upavana-Vinoda is substantially an extract from Peterson's edition of the Śarṅgadhara-Paddhati with variants supplied from Dr. Gananath Sen's edition of the Upavana-Vinoda.

The Śarṅgadhara-Paddhati, as pointed out in the Introduction, is a Sanskrit compilation of so late a date as the end of the thirteenth century of the Christian era. But the Introduction, citing evidences from the text of all ages, may sufficiently convince the reader that the science of Arbori-Horticulture had developed in India in an early age,—an age which is decidedly earlier than the birth of Socrates, Plato and Aristotle. If the beginnings of all sciences and philosophies in Europe are traced in Greek Civilization, the historian of Western developments in the Science of Botany and allied subjects is not required to think of ancient countries other than Greece and Rome. But if China has so far found reference in the history of such developments and India has found no mention, it must be due to no other reason than that the Indian aspect has not been properly studied as yet. There is nothing to complain, nothing to be ashamed of. The plant perspective of Indian Civilization needs a very careful attention and patient study.

The texts furnished are to serve as samples of textual materials which are now available.

The Indian Research Institute has done the author much honour by starting its Indian Positive Science Series with this work, and Sir Brajendra Nath Seal by writing the foreword. The author is much indebted to Professor Pramathanath Sarkar of the City College for some valuable assistance rendered by him in editing the text of the Upavana-Vinoda, and his thanks are due no less to Mr. R. C. Adhikary, for his general assistance in preparing this work for the press. It needs no further mention that the author has availed himself of the helpful criticism and guidance of Dr. Barua in the whole of the undertaking of which this work is only a part.

Presidency College
Calcutta.
Nov. 1934

GIRIJA PRASANNA MAJUMDAR

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UPAVANA-VINODA

INTRODUCTION

THE ŚĀRṄGADHARA-PADDHATI is an Anthology compiled by Śārṅgadhara. It is an encyclopædic work dealing with a variety of subjects, such as asceticism, erotics, rhetoric, medicine, politics, economics, botany, chemistry, cosmetics, criticism in general, philosophy, science of war, and so forth. It practically surveys the whole of human life in its most superficial as well as its deepest aspects. Of this an interesting chapter, Upavana-Vinoda, treating of Arbori-Horticulture, is translated in these pages.

The author of this treatise was, as is clear from the introductory verses[1], Śārṅgadhara, a courtier of king Hammira of Śākambharī-deśa (modern Bundelkhand) who flourished in the 13th century A. D. (1283-1301). Hammira was a powerful monarch, a great patron of learning and himself a writer.[2] He was defeated and killed by Alauddin Khiliji, and had he not been a contemporary of the latter he would perhaps have figured in history as a conspicuously great monarch.[3] It appears from the opening verses that the author undertook to compile the treatise at the command of his king for the benefit of his subjects.

The chapter Upavana-Vinoda from the Śārṅgadhara Paddhati, the English translation of which is offered here, deals with the following topics :—

(1) Glory of Trees, (2) Good and evil omens relating to residence near trees, (3) Selection of soil (for planting trees), (4) Classification of plants, (5) Sowing of seeds, (6) The process of planting, (7) Watering of plants (after planting), (8) The rules for the protection of plants, (9) Construction of a garden house, (10) Examination of the soil where wells (for watering) are to be dug, (11) Rules for the nourishment of plants, (12) Kūṇapa water (recipe for a nutrient solution), (13) Treatment of plants in disease and health, (14) Botanical marvels and (15) Ascertainment of the price of things.

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1 पुरा शाकम्भरीदेशे श्रीमान्हम्मीर भूपतिः ।
चाहुवानान्वये जातः ख्यातः शौर्य्ये इवार्ज्जुनः ॥२

2 Hammira Mahākāvya of Naya Chandra Sur, Ind. Ant. VIII, pp. 55-73 (Text-ed. (N. J. Kirtone, Bombay, 1879).

3 For further information see Dr. H. Roy's Dynastic history of Northern India, Vol. II

The treatment, as might be expected in an anthology, is rather inexhaustive. The subject, however, was studied in India for centuries prior to the date of the composition of the present treatise. The Science of Plant-life, Vṛkṣāyurveda, was a distinctly comprehensive science, a branch of which dealing with the construction and maintenance of gardens, is only referred to here. It is pertinent to enquire, where is this Science—the Vṛkṣāyurveda ? It must have been there at one time, but it is, like the Dhanurveda or the Science of Archery and many other sciences, practically lost. A reconstruction at the present state of our knowledge is out of the question ; but we have significant references scattered throughout Sanskrit literature, from which it is possible to have a glimpse of it. We have elsewhere tried to show that this science existed in ancient India, and the students of Medicine and Agriculture, as now, had to study it as a necessary part of their programme.[1]

The science of Arbori-Horticulture, the subject of our present study, which is a comparatively new thing in the West being brought into vogue towards the middle of the 19th century was an old thing in India. It played an important part in public administration. Public parks and pleasure gardens were provided by the Government (Arthaśāstra, Śukranīti and Kāmandakinīti) for health, recreation and enjoyment of the public.

All decent houses (Vātsyāyana's Kāmasūtra) and palaces of kings had pleasure gardens attached to them. These were well laid out, kept in perfect order, and placed in charge of well-trained experts (Ārāmādhipati). In ancient dramas and epics and amatory poems, flowers and flower gardens played important parts, and special class of artists, *mālākarā* and *mālinī*, came into being enjoying protection of the State (Śukra. II. 83).

A clear idea of the contents of the chapter and their historical and scientific importance may be formed from the conspectus given below :—

1. GLORY OF TREES

The custom of planting shady fruit trees along the public thoroughfares, or constructing gardens and consecrating them for public use has been of immemorial antiquity.[2] Like many a good thing in India it received a religious sanction.

The glory of trees is proclaimed in some of the Purāṇas too, much after the manner we find here in Śārṅgadhara's treatise. Thus in the Matsya Purāṇa we read : "One who sinks a well in a place where there is scarcity of water, lives in heaven for as many years as there are drops of water in it. The effect of digging ten such wells is equivalent to the digging of one pond, and the

1 Vanaspati-Majumdar, Calcutta, 1927.

2 Sāṅkhāyana—Gṛhyasūtra, V, 3, 2, et seq (R. V. III, 8, 11). S. B. E. 29, pp. 135—136.

excavation of ten such ponds is equivalent to that of a lake, and the excavation of ten such lakes has as much effect as that of begetting a virtuous son and the birth of ten such sons has exactly the same effect as that of planting a single tree."[1]

In another chapter of the same Purāṇa, details of the rites and virtues of planting trees are given : "One who plants even one tree, according to the prescribed rites, resides in heaven for 30,000 years of Indra. The planter of trees, according to the prescribed rites, liberates the same number of his past and future manes, attains to the highest perfection and is never reborn on earth".[2]

A similar eulogy on the practice is prescribed by the Agni Purāṇa : the planting of trees and the construction of pleasure gardens (for the public) are conducive to purgation of sin and enjoyment of prosperity.[3]

Varāha Purāṇa enjoins that "he never goes to hell who plants an Aswattha or a Pichumanda, or a Banyan, or ten Jasmines, or two pomegranates, or five mangoes (pañchāmras).[4] A similar verse also occurs in Tithitattva where instead of Banyan, Jasmines and Pomegranates we have Champaka, Keśara, Tāla and Nārikela.

A more elaborate injunction describing the particular effects of planting particular trees by the roadside is given in the Padma Purāṇa : "Plants are like sons to a sonless man. Therefore, plant Aswattha trees with care, for it does the work of a thousand good sons. The planting, further, of Aswattha leades to prosperity ; of Aśoka, to destruction of all sorrow ; of Udumbara, increases (the effect of) sacrifices, of Nimba, to longevity ; of Jambaki, residence in heaven ; of Dāḍima leads to the bliss of a good wife ; of Dumura, to the cure of all diseases ; of Palāśa, to the protection of Brahmā ; of Arka, to the eternal pleasure of the Solar Deity, of Bilva, to that of Siva, and of Pātali, to that of Pārvati ; of Śiṃsapā, to that of the Apsarās (female seraphim) ; of Kunda, to that of the Gandharvas ; of Bibhītaka, to the increase of the number of servants, and of Vakula, gives maid servants. The Tāla leads to the loss of one's all children, and the Nārikela gives many wives, Drākṣā to all-round prosperity, Keli to physical pleasure, Ketakī to ruin and Plakṣa leads to permanent fame." This list practically exhausts the whole of human pleasures and pain. The same authority further tells us that, "the man planting trees (by the wayside) will enjoy bliss in

1 Chap. 154, St. 511—512.
2 Chap. 59, St. 17—20.
} S. B. H. 17, parts i & ii, Allahabad.
3 Chap. 70, St. 1—9. Eng. translation—M. N. Dutta, 2 Vols. Calcutta, 1904.
4 गोकर्णमाहात्म्यनामाध्याय:—(for text see appendix) ; see also J. A. S. B. 39, Part 1, 3, pp. 199—232

heaven for as many years as there are fruits and flowers and leaves in the plant he plants[1]".

Birdwood in this connection quotes an authority which says: "The Brahmanas promise that he who plants one Aswattha, two Champakas, three Nāgakeśaras, seven Tālas, twelve Nārikelas, and devotes them with their shade, leaves, flowers, and fruits to public use, shall certainly inherit the kingdom of Heaven."[2]

This is no mere irrational superstition. There is a plain reason behind the practice prescribed. The Agnipurāṇa has the following explanatory verses: "The man who plants trees bearing fruits and flowers for the enjoyment of the public attains to a supreme state of bliss. The man who plants thirty trees giving shade, fruits and flowers, and ten mango trees, is not destined to go to hell. Gods, demons, angels, seraphs, and the whole of the flying fraternity, beasts, and birds and men—all receive some sort of delight through trees. The gods get pleasure through flowers, the manes through fruits, and men and birds and beasts through shade. The man who plants trees giving fragrant flowers and sweet fruits, is re-born, as a result, as a Brahmin in a respectable family enjoying prestige and wealth in a prosperous country. So one should plant such trees and look after them as if they were one's own children which, in fact, religiously speaking they are. The mortal sons are meant for purely selfish purposes whereas the 'tree-sons' serve purely altruistic ones. Leaves and flowers and fruits and shades and roots and barks and wood (timber) benefit others and bring salvation to our forefathers. One should worship trees as one worships a sage free from the vice of envy, because it provides with shade and fruits and flowers even to its very cutter. The all-giving 'tree-son', which does not bear a grudge even to its 'cutter-father' out of selfish consideration, brings about the complete salvation to the planter. So the Brahmin should always plant them with due ceremony and treat them as his sons."[3]

The Varāha Purāṇa observes on the same point—"A man by planting trees attains to the same bliss as he does by gift of cows and land. Just as a pious son saves the family, just as good but difficult rules followed with care save the performer from hell, so also do trees full of flowers and fruits save the planter,"[4] In the same chapter Gokarṇa says—"That (the tree) which is taken for fuel is called "agnihotra" (the sacrificial fire); the tree by reason of shade and rest for travellers, the nest of birds, and

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1 Chap. 26, Vṛkṣaropanam.

2 Indian Arts, Part 1, pp. 85—91.

3 Chap. on तड़ागवृक्षप्रशंसा ।

4 Chap. on Gokarṇamāhātmya.

leaves, roots and barks, etc., for drugs of bodied beings is called a "pañchayajña" (who observed the five sacrifices). It houses small animals for whom it would have been difficult to build a house. It sheds leaves to give alms, and this is how it ends its sacrifice (pañchayajña). It produces fruit twice a year which all the year round are of service to their parents (planter), and there are omens to be understood from the trees. Thus, O son, are they (the trees) to be duly planted, and so the seers know."

The Agni Purāṇa then very aptly concludes : "Therefore never cut down any tree that bears good flowers and fruits, if you desire the increase of your family, of your wealth, and of your future happiness. If a man cuts down trees near temples, chaityas and graves, famine, epidemic and drought follow. If one destroys Chiñcha trees, serious mischief to the monarch is the consequence. If one destroys a boundary tree he dies with his horses ; therefore, one should not cut down trees of the region haunted by gods. The supremely wicked man who cuts down trees and thereby stops the passage to wells, ponds and lakes gets his family degraded and even his distant relatives despatched to hell. The man who cuts down trees giving cool shade is tortured by the agents of Yama in the particularly grim region of hell known as Asipatra-forests. The man who molests or cuts down trees in the suburbs of a town goes to the fierce-looking region of hell known as Jṛmbhaṇa. If a man cares after Bilva tree it is well and good for him, otherwise danger is sure to follow. One should plant five Bilva trees if he is not to miss heaven."[1]

Thus the general idea underlying the whole practice is one of public utility religiously enjoined in order to make it universally understood, appreciated and followed, so much so that even in the Edicts of Aśoka this has been regarded as an act of Piety :

Rock Edict II—Provision of comforts for men and animals

"......On the roads both wells have been dug and trees planted for the enjoyment of man and beast."

Pillar Edict VII—Review of the king's measures for the propagation of the Law of Piety

(v) Thus said His Sacred and Gracious Majesty the King : On the roads I have had banyan trees planted to give shade to man and beasts ; I have had groves of mango trees planted ; at every half-Kōs I have had wells dug ; rest houses have been erected ; and numerous watering places have been provided by me here and there for the enjoyment of man and beast."[2]

1 Chapter on Varuṇārāmapratiṣṭhā. Cf. Varāhapurāṇa where it is said : कार्म्मण्यास्त्वैव ये वृक्षा न च्छेत्तव्याः कदाचन ।

2 Edicts of Aśoka, V. A. Smith, 1st Edition. pp. 7-8 & 33-34.

And by the time of Manu destruction of plants came to be regarded as State offence, and in his code provision was made for its punishment (VIII, 285, 330 and 331 ; IX, 143, 145).[1]

The Matsya Purāṇa prescribes degree of punishment proportionate to the guilt ; thus "one who fells his master's or other's trees should be fined gold pieces ; and double the fine should be imposed on those who cut a tree near a tank, a thoroughfare, or a boundary line (91-92). Those who break fruit trees, arbours, creepers and floral plants should be fined one māsha of gold (93). Even a man chopping grass unnecessarily should be made liable to pay a fine of kārṣāpaṇa (94). Out of the fine levied for cutting trees the king should use his own discretion : he must pay the owner of the trees the price for them and the rest should go to the Royal Exchequer(95).[2]

Thus the plants are glorified because of their utility. They are either sacred to some deity, or are shade-giving, or fruit-bearing, or bearing flowers which one needed for worship.

II. GOOD AND EVIL OMENS RELATING TO RESIDENCE NEAR TREES

Reference to the trees and plants which are to be avoided in gardens adjoining a house, and to trees that are to be preferred, is plentiful in ancient literature. Beginning with the earliest we find Gobhila enjoining in Gṛhyasūtra :

"Let him (householder) avoid an Aswattha tree on the east side (of his house), and a Plakṣa on the south side, Nyagrodha on the west side, and on the north side an Udumbara". 22.

"One should say that an Aswattha brings (to the house) danger from fire, one should say that a Plakṣa tree brings early death (to the inhabitants of the house), that a Nyagrodha brings oppression through (hostile) arms, that an Udumbara brings diseases to the eye". 23.

"The Aswatha is sacred to the Sun, the Plakṣa to Yama, the Nyagrodha is the tree that belongs to Varuṇa, the Udumbara to Prajāpati". 24.

"He should place those (trees) in another place than their proper ones (25) and should sacrifice to those same deities."[3] 26.

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1 Institutes of Manu, S. B. E. 25, pp. 304, et sq ; & 459.

2 Chap. 227, sl. 91-95. S. B. H. 17 (ii), p. 245.

3 IV, 7 ; S. B. E. XXX, p. 122 ; for verse 24, cf. Padma P. Uttarākhaṇḍa where it is said—

अश्वत्थरूपी भगवान विष्णुरेव न संशयः ।
रुद्रोरूपवटस्तद्वत्पलाशो ब्रह्मरूपधृक् ॥

Varāhamihira says that "the presence of Plakṣa, Vata, Udumbara and Aswattha trees respectively in the south, west, north and east of a house forebodes evil, and if the same trees are present in order—Plakṣa being in the north, Vata in the east, Udumbara in the south, and Aswattha in the west it means good to the house." 83

"Presence of thorny trees like Khadira near a house means danger from enemies, that of Kṣi'ra trees (trees with milky juice) loss of things, and that of fruit trees, like mango, etc., indicates loss of children (prajākṣayakara). One should not use even the wood of these trees as fuel". 84.

"If one does not want to part with these trees one should do well to plant Punnāga, Aśoka, Ariṣta, Vakula, Panasa, Śami and Sāla near them."[1] 85.

Bhaṭṭotpala in his commentary on the Bṛhatsaṃhitā quotes Garga who enjoins that "one should avoid Aswattha in the east, Plakṣa in the south, Nyagrodha in the west and Udumbara in the north (of his house), for, it is said that Aswattha (in such position) engenders fear, Plakṣa defeat, Nyagrodha illness of the king and Udumbara that of eyes. Vata in front of a house is best, so are the Udumbara, Aswattha, and Plakṣa in the south, west and north of the house respectively."

Varāhamihira in another place says, "let us first of all talk of trees that should be planted in a garden, or in the house itself. Ariṣta, Aśoka, Punnāga, Śiriṣa, Priyaṅgu, should be planted in the garden, or in the house as preeminently conducive to the welfare of the house." Kāśyapa, another authority, adds Champaka, Udumbara and Pārijātaka to the above list and says, that they should be planted in *devālayé tathodyāné grhesūpavanesu cha*"[2] 3. The Agni Purāṇa prescribes that "a Plakṣa tree planted and grown on the north of a building brings good luck to its master, whereas a Vata tree on its east, an Udumbara on its south and an Aswattha on its west are possessed of similar virtues. The garden should be laid on the lefthand side of a dwelling house."[3]

To promote the hygienic effects of different trees and shrubs planted around the dwelling of a man the Agnipurāṇa further enjoins that "Plakṣas should be planted to the north of a dwelling house, the Vatas on the east, mangoes on the south, Aswattha on the west. Thorny shrubs should be so planted as to edge the southern boundary of the ground of a house. The flower garden should be laid out adjoining a dwelling house, and blooming plants or sesame should be cultivated therein."

"Tanks should be excavated in the gardens, and arms of rivers should be made to run in the same. Trees such as Ariṣta, Aśoka, Kadali, Punnāga, Śiriṣa,

1 Bṛhatsaṃhitā. Chap. 52. Vāstuvidyā, Vol. ii, pp. 643-705.

2 Chap. 54, Vṛkshāyurveda, Vol. II, p. 743 (Sanskrit original).

3 Chap. 246, English translation, pp. 889-893.

Jambu, Vakula and Dāḍima or any other (useful) trees should be carefully planted in a garden.[1]"

The Matsyapurāṇa has a similar but a more elaborate prescription, thus: "A banyan tree to the east of a house is auspicious, and all desires are fulfilled; a fig tree to the south, a pipal tree on the west and a plakṣa to the north of it brings fortune to the owner. If kanṭaki' (thorny) trees, milky trees, Asana trees and the straight trees be planted in the house in the above mentioned direction respectively, then it means misery to the lady of the house and her children. If one does not cut down such a growth he should plant auspicious trees near them. A house with the following trees in its vicinity is very auspicious, viz., Punnāga, Aśoka, Vakula, Śamī, Tilaka, Champaka, Dāḍima, Pippali, Drākshā and a kusumamaṇḍapa (bower). The following trees bring prosperity and increase riches, viz., Jambi'ra, Pūga, Mallikā, Nārikela, Kadali and Pātali[2]" 20-24.

The Brahmavaivartta Purāṇa is more exhaustive in this respect. Thus it says "that the cocoanut tree near the dwelling house confers wealth on the family, and if on the east, or north-east of an encampment, the tree is the donor of sons; the mango tree, the best of the trees, is auspicious at every place, and if situated in the east gives wealth to man. The Bilva, the Panasa, the Jambi'ra and the Vadari trees are, in all situations, conducive to prosperity, but, if in the east they give sons and, on the south, confer wealth on the owner. The Jambuka, Dāḍima, Kadali, and Āmrātaka grown in all situations enrich the house-holder, but if grown in the east they bring friends (bandhu), and if in the south, intimate associates (mitra). They are always conductive to good, wealth and plenty of children. Betelnut, if planted in the south or in the west, leads to pleasure, and if in the north-east, comfort; wherever planted they bring prosperity. Champakas too, wherever planted, bring in their train purity and welfare. Alābu, Kuṣmāṇḍa, Māyāmba, Sukāsaka, Kharjjura, Karkatī if planted in an encampment the result is great good. Vāstuka, Karabilva, Vārtāku, Vallīphala, all these wherever planted yield beneficient results."

Then it gives the names of trees the planting of which should by all means be avoided. "Wild trees should not be planted either in encapments or in cities. Vata should not be planted in an encampment because it leads to danger from thieves, but it is good for cities because its very look confers virtue (on the lookers). The planting of Tintiḍī trees should be avoided with all care; the very remembrance of it is perilous to wealth and dangerous to the life of the citizens; they are to be totally prohibited in camp

1 Chap. 282, English translation, pp. 1037-1038.

2 Chap. 255, S. B. H. 17, ii, p. 298.

and partly in cities ; they are, however, not to be prohibited in villages and spacious towns. The wise persons should avoid by all means the air coming from them. Kharjjura and Uhu trees are forbidden in camps, but certainly not in villages and spacious towns. Trees like Champaka and rice plants are equally beneficient in villages, cities and in camps. Sugarcane, Aśoka, Śiriṣa, Kadamba are always productive of good. So also are Kacvi', Haridrā, Ārdraka and Haritakī, both in villages and in towns. The air coming from the Āmalakī tree is not always beneficient".[1]

Śukrāchāryya in his Śukrani'ti is more practical on the subject. His general instruction on the point is : "one should lay out a fair garden to the left of the dwelling house (IV. iv, 104). He should plant those trees which bear good fruits (phalinah) very near the village (IV. iv, 103)." Then he gives a long list of such phalinaḥ trees in IV. iv, 95—102. His other general instructions are to plant thorny trees (kanṭakinah) in forests (113-114), and expansive trees, shrubs and creepers "in villages if domestic, and in forests, if wild"[2] (123-124).

In this, as well as in the sections that follow, we find that in the treatment of plants from every aspect utility is distinctly kept in view.

III. SELECTION OF SOILS

A more elaborate attention is paid to the topic of classification of soils with characteristic flora in Charaka[3] and Suśruta[4].

Charaka divides land into three classes, namely, Jāṅgala, Anūpa and Sādhārana according to the nature of the soil (edaphic conditions) and climate (climatic conditons). Thus :

1. Jāṅgala Region (literally dry places—plants xerophytes)—"The region called Jāṅgala is full of unobstructed open spaces, where a steady and dry wind blows, pervaded with expansive mirages, rivers and rivulets scarce, abounding in (artificial) wells (i.e. scarcity of water), also abounding in dry and rough sands and big sandy particles (kankurs). 6 & 7.

Suśruta describes this region as "the country which presents a flat surface, and whose dull monotony is enlivened here and there by scanty growths of thorny shrubs, and tops of a few isolated hills and knolls, and in which the waters from springs and wells, accumulated during the rains, become nearly

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1 Chap. 102, Śrikrishna Janma khaṇḍa.

2 S. B. H. 13, pp. 165-166.

3 Kalpasthāna I, Madanaphala Kalpa, 6, 7—9 ; Eng. translation, Fasc. LXI, Lesson 1, pp. 1917—1918.

4 Sūtrasthāna, Chap. 35, 34—42. Eng. translation by K. L. Vishagratna, Vol. II, pp. 325—326 (Calcutta, 1911).

drained and strong gales of warm wind blow (during the greater part of the year)" 35.

Charaka gives, by way of illustration, the following list of plants characteristic of this region: Khadira, Asana, Aśwakarṇa, Dhava, Tiniṣa, Sallakī, Sāla, Somavalka, Vadari, Tinduka, Aswattha, Vata and Āmalakī, the predominant types being Śami, Arjuna, and Śiṁśapā." 6 & 7.

2. Anūpa Region (literally marshy, or swampy and watery—plants littoral, or inland)—"Mostly abounding in rivers and bordered by seas, swept by cold wind, i. e., charged with abundant moisture. The country is interspersed with rivers, banks of which are decked with—Vañjula and Vānīra. Mountains are absent from this region. The region is thickly over-grown with forests bowers, and trees in flowers encircled by verdant trees and tender creepers (inland). The land is covered with dense forests of Hintāla, Tamāla, Nārikela and Kadali." 8.

Suśruta describes this region as the country "that contains a large number of pools, and is wooded and undulated with chains of lofty hills traversing its area, and which is impassable owing to its network of rivers and sheets of accumulated rain-water rippling before the currents of the gentle humid air." 34.

Varāhamihira mentions the following trees as growing in this region: Jambu, Vetasa, Vānīra, Kadamba, Udumbara, Arjuna, Vījapūraka, Drākṣā, Lakooca, Dāḍima, Vañjula, Naktamāla, Tilaka, Panasa, Timira and Āmrātaka —these 16 kinds of trees are the predominant species of this region."[1]

Amarkoṣa mentions the following plants as growing exclusively in water: Saugandhika, Kalhāra, Hallaka, Rakta-Sandhyaka, Utpala, Kubalaya, Indīvara, Kumuda, Padma, Kamala, Puṇḍarīka, Sitāmbhoja, Kokanada, Raktotpala, Vāriparṇī, Muṣākarṇi, Jalanilī, and Śaivāla.[2]

3. Sādhārana Region (literally the ordinary—plants mesophytes)—

Charaka says that "the region which is endued with creepers, and plants and trees of both the classes, i.e., the Vanaspatis and Vānaspatyas, is called Sādhārana." 9.

According to Suśruta "a country which exhibited features common to both the aforesaid classes is called Sādhārana or the Ordinary" 36.

As to the amount of rain-fall in these regions Kautilya in his Arthaśāstra mentions that 16 droṇas of rain-fall in the country of Jāṅgala (dry places), half as much more in Anūpa (moist) countries; as to the countries which are fit for agriculture (desavāpanam)—13½ droṇas in the country of Aśmakas (Mahārāṣtra); 23 in Avanti; an immense quantity in Aparāntānam

1 Bṛhatsaṁhitā, Chap. 54, 10—11, Vol. II, p. 745 (Text).

2 Pātāla Varga 50-56; cf Colebrook's edition (1807), BK. I, Chap. 2, Sec. 3, 36-42.

(Konkana), and the foot of the Himalayas. The author finally directs that "Lands that are beaten by foam (phenāghātah, i.e.; banks of rivers, etc.) are suitable for growing valli'phala (pumpkin, gourd and the like); lands that are frequently overflown by water (parivahanta) for long pepper, grapes (mṛdvika) and sugarcane; the vicinity of wells for vegetables and roots, low grounds (hariniparyantah—moist bed of lakes) for green crops; and marginal furrows between any two rows of crops are suitable for the plantation of fragrant plants, medicinal herbs, cascus roots (uśināra), hira(?) beraka (?) and piṇḍāluka (lac) and the like".[1]

Our survey in this section distinctly shows that classification of soil was based on two grounds—medicinal and economic. The medical authorities, like Charaka and Suśruta, had in view the efficacy of vegetable drugs which depends on the nature of soil in which they grow. And politicians like Chānakya cared for the productivity of different types of soil, an attention to which is necessary on the part of a good Government to prevent famine.

IV. CLASSIFICATION OF PLANTS, AND MEANS OF PROPAGATION[2]

A. CLASSIFICATION

A broad classification of plants, probably based on habits, into trees, shrubs, herbs and creepers, is to be found as early as in the texts of the Ṛgveda (X. 97. 15). Charaka classifies plants into 4 orders, namely, Vanaspatis, Vānaspatyas (Vṛkṣas of Suśruta), Oṣadhis and Virudhs. Vanaspatis are trees that bear fruits without flowers; Vānaspatyas are trees that bear first flowers and then fruits; Oṣadhis are those herbs that wither after fructification, and Virudhs are herbs with spreading stems, e.g. creepers and gulmas (लतागुल्मादि:).[3] Chakrapāṇi in his commentary on Charaka notes that Virudhs comprise two classes (1) Latās—creepers, and (2) Gulmas—herbs with succulent or cactaceous stems and shrubs, The Oshadhis are subdivided into (1) annuals or perennials, bearing fruits, and (2) plants that wither away after maturing and without fructification, like the Durvā (grasses).

The commentator Dalvana gives us some details: The Plakṣa and the Udumbara are given as instances of Vanaspatis; the mango, the Jambu, etc., of Vṛkṣas. The Virudhs are of two classes (1) creepers with stems spreading on the ground (प्रतानवत्य:), and (2) herbs with succulent stems (गुल्मिन्य: or स्ताम्बिन्य: वर्त्तुलवतासन्ततिविश्रिष्टा:).

The Oṣadhis are divided into two classes: (1) those that wither away after fructification, e.g., wheat, barley, linseed, pulses, etc., (फलपाकनिष्ठा गोधूमादय:),

1 Chap. XXIV, 116-117, (Shyama Sastri Ed. (1915), pp. 143-145).

2 See Vanaspati, Sec. VII, for elaborate dealing of the subject, pp. 79-127.

3 Sūtrasthāna, I. 36, 37; (cf. Suśruta-Sūtrasthāna, I. 23).

and (2) those that wither after maturity and bear neither flowers nor fruits e.g., mushrooms.[1]

Manu's division[2] of plants is more systematic than the above. According to him :

(1) Those that bear abundant flowers and fruits and wither after fructification are called Oṣadhis, e. g. rice and wheat.

(2) Those that bear fruits without evident flowers are called Vanaspatis e. g. Vata, Plakṣa, etc.

(3) Both those which produce flowers only and those which produce fruits only may be clased as Vṛkṣa.

(4) Bushy herbs of various types may be classed as Guccha, e. g. Mallikā (Jasminum), and the like.

(5) Succulent shrubs of various types are known as Gulmas.

(6) Grasses of different kinds are called Tṛṇas.

(7) Creepers with stems spreading on the ground (procumbent and document) are called Pratānas.

(8) Lastly, there are those which twine round or climb a tree or a support, called Vallis.

Amara's classification is full of details showing a further advance in knowledge :

(1) The trees (the flowering Vṛkṣas and the flowerless Vanaspatis) are fruit-bearing and possess woody stem (काष्ठदारु), trunks (प्रकाण्ड-प्रकाण्ड: स्कन्ध: स्यान्मूलात्शाखाविस्तर:) ;

(2) Arboraceous plants and shrubs (क्षुप:, ह्रस्वशाखाशिफ:) bearing flowers as well as fruits.

(3) The Latās are flowering plants with herbaceous stems, some of them creeping on the ground (प्रतानिनी), others succulent (गुल्मिणी), others twining or voluble (मूलाच्चाग्रं गता लता—cf. Suśruta—लताप्रतानवत्य: गुल्मिन्यश्च).

(4) The Oṣadhis (in the narrower sense) are herbaceous plants bearing fruits with or without flowers, and dying or withering away after fructification. Kandaśāka (tubers, rhizomes, corms) are included in this ; e.g., Palāndu (the onion पलाण्डुस्तु सुकन्दक:), the Lasuna (garlic, महाकन्द:) ; etc. But the chief instances are from the grass family (धान्यं व्रीहि स्तम्बकरी । स्तम्बो गुच्छस्तृणादीनाम् । तृणधान्यानि नीवारा:, etc.).

(5) The Tṛṇas, grasses, of which the characteristic is the formation of gulmas (culms of grasses with annular knots from which leaves spring —स्तम्बो गुल्म तृणादीनामकाण्डद्रुमगुच्छयो:).

The bamboo is considered as a sort of giant grass (तृणध्वज:). The reeds are also placed among the grass (नलादयस्तृणं गर्मुच्छ्यामाकप्रमुखमपिप्रमुखशब्दात् नीवाराद्या:).

1 Positive Science, Dr. Seal, p. 170.

2 Manu Saṃhitā, I. 46-48,

(6) The Palmaceae (including the cocoanut, date, areca, and other palms) are classed as tree grasses, probably because, like the grasses they are endogens characterised by spikes and parallel veins (तृणद्रुमः).

(7). The Jalanīlī (or Plava) includes all floating species which give the water a green or blue colour, and finally,

(8) the Śaivāla includes the mosses and the algae[1].

B. METHODS OF PROPAGATION

Various methods of propagation, such as, by seeds (vījaruha), by roots (mūlaja), by cuttings (skandhaja), by graftings (स्कन्धे रोपणीया), by apical portions (agravi'ja), by leaves (parṇayoni), and by śaunarudhaja (?) are mentioned in ancient treatises.

Propagation by seeds is a very common method. The Ṛgveda and the Atharvaveda mention it in various places. Manu (1, 46, 48) mentions plants that grow from seeds, and from planted cuttings. The Arthaśāstra (Chap. 24, p. 141) mentions propagation by bulbous roots and underground stems (kandavījam), and by cuttings (skandhavījam). The Bṛhatsaṁhitā (Chap. 54) directs that Kānṭhāl, Aśoka, Kadali, Jambu, Lakuca, Dāḍima, Drākṣā, Pālibata, Vījapura and Atimuktaka—all these are to be propagated by means of cuttings (काण्डरोप्याः)-(4 & 5). Maskariṇ Gosāla says, "Sugarcane, bamboo, reeds, etc., propagate from joints."

Better than cuttings is the process of grafting as recommended by the author of the Bṛhatsaṁhitā. There are two methods: one consisting in inserting the cutting from one plant into the root of another severed from its trunk. And the second method consists in inserting the cutting of one tree into the stem of another—the cutting is called the scion, and the parent plant is called the stock (मूलोच्छेदेऽथवास्कन्धे रोपणीयाः परं ततः). 5.

As an instance of the method, called agravīja, i.e. plants whose apices are only planted as a means of propagation, Betel is mentioned. Bryophyllum calycinum and Begonias are given as instances of the method where leaves (parṇayoni) serve as a means of multiplication.

Buddhaghosa in his commentory on Digha Nikāya (1, p. 3) gives us the following illustrations of the methods of propagation :

Mūlabījam (root-seeds)—Haliddiṃ (turmeric), Singiveraṃ (zinziber), Vacaṃ, Ativiṣam, Kaṭukorohiṇī, Uśiraṃ, etc.

Khanda-bījam (cuttings) -Assattho, Kacchako, Nigrodha, Pilakkho, Udumbaro, Kapitthano, etc.

Phalu-bījaṃ (joints)—as in Reeds, Sugarcane.

Agga-bījam (buddings)—the plant Samirana (?), Ajjukaṃ, Hiriveram, etc.

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1 Quoted from Seal's Positive science (1915), pp. 175—173.

Bija-bījam (seeds)—Pubbaṇṇaṃ (7 dhānyas-paddy), Apparaṇṇaṃ (Pulses, Cucurbita, etc.)[1].

V. SOWING OF SEEDS

As for the sowing of seeds Kautilya's Arthaśāstra has the following prescription :—

"The seeds of grains are to be exposed to mist and heat (tushārapāyanamuṣnaṃ ca) for seven nights ; the seeds of Kośi (such as mudga māsha, etc.) are treated similarly for three nights ; the seeds of sugarcane and the like (kāṇḍabijānaṃ) are plastered at the cut end with the mixture of honey, clarified butter, the fat of hogs, and cowdung ; the seeds of bulbous roots (kanda) with honey and clarified butter ; cotton seeds (asthibīja) with cowdung ; and water pits at the root of trees are to be burnt and manured with bones and dung of cows on proper occasions,"[2]

"To ensure inflorescence, etc., (कुसुमयुक्तमेव) Varāhamihira directs that the seeds before being sown should be treated as follows :—The seeds should be taken up in the palm greased with ghee and thrown into milk ; on the day following the seeds should be taken out of the milk with greased fingers and the mass separated into single seeds. This process is to be repeated on 10 successive days. Then the seeds are to be carefully rubbed with cowdung, and afterwards steamed in a vessel containing the flesh of hogs or deer. Then the seeds are to be sown with the flesh, with the fat of the hogs added in a soil previously prepared by being sown with sesame[3] and dug up or trodden down, and then to be sprinkled daily with water mixed with kṣi'ra"[4]

"To ensure the growth of Ballaris (i.e, sprouting and the growth of luxuriant stems and foliage)", Varāhamihira further directs, "the seeds should be properly soaked in an infusion of powdered paddy, māsha (bean), sesame, and barley mixed with decomposing flesh, and then steamed with haridrā (turmeric). Thiṣ process will succeed even with the Tintiḍi (Tamarind). For the Kapittha the seeds should be soaked for about 2 minutes (literally such length of times as it would take one to make a hundred rhythmic claps with the palms, तालशब्द:), in a decoction of 8 roots :—Āṣphota, Āmalakī, Dhaba, Vāsika, Vetula, Sūryyavallī, Śyāmā, and Atimuktaka boiled in milk. The seeds then should be dried in the sun. This process should be repeated for 30

1 The Sumangaa-Vilāsini, P. T. S. I, p. 81. D, I. I. II. Cf. Hemchandra—Kuraṇṭyādyā agrabījā mūlajastūtpalādayaḥ, Parvayônaya ikshvādyaḥ skandhajāḥ sallakīmukhāh. Śālyadayô bījaruhāḥ saṁmūrcchajāstṛṇādayaḥ. Syurvanasptikāyasya ṣaḍété mūlajātayaḥ.

2 Chap. 24, 117. p. 145.

3 Cf. Atharva Veda (II. 8. 3.)

4 Chap. Liv, 19-26. Eng. Trans. from Seal's Positive Science.

days. A circular hole should be dug in the ground, a cubit in diameter and 2 cubits deep, and this should be filled with the milky decoction. When the hole dries up it should be burnt with fire and then pasted over with ashes, mixed with ghee and honey. Three inches of soil should now be thrown in, then the powder of bean, sesame and barley, then again three inches of soil. Finally washing of fish should be sprinkled and the mud should be beaten and reduced to a thick consistency, then the seed previously prepared should be placed in the hole under three inches of soil and fish washings (with fish) poured. This will lead to luxuriant ramification and foliage which will excite wonder".

And "the sprouts of seeds, when grown are to be manured with a fresh haul of minute fishes and irrigated with the milk of Snuhi'"[1]

VI. THE PROCESS OF PLANTATION

The process of plantation receives scientific attention probably for the first time in the Arthaśāstra (Chap. 24, 115) which directs that the Superintendent of Agriculture should possess the knowledge of the science of agriculture dealing with the plantation of bushes and trees (kṛshitantragulmavṛkshāyur-vedajñah), or be assisted by those who are trained in such sciences.

The Forest Officer and the Superintendents of parks and gardens, according to Śukrāchāryya, are to know "the causes of growth and development of flowers and fruits, the methods of planting and curing the trees by administering proper soil and water at the suitable time, etc."[2]

Bṛhatsaṃhitā is more elaborate on the subject of plantation. It enjoins the following preliminaries :

"One should plant the tree after oneself being pure and after worshipping the tree with a bath and anointment, and the result will be that the tree will be graced with luxuriant growth of leaves".

"Uttarā, Rohiṇi. Anurādhā, Chitrā, Mṛigaśirā, Revatī, Mūlā, Viśākhā, Tiṣya, Śravanā. Aśvinī, and the Hastā, are the stars under the influence of which a tree when planted will flourish"[3]

In the Agnipurāṇa there are verses of similar import. "One should take or plant the trees after worshipping the moon and Brahmin, and make sure to propitiate the five stars—Vāyavya, Hastā, Prājeṣa, Vaiṣnava, and Mūlā"

"One should perform the work (of plantation) after worshipping Varuṇa, Vishnu, and Parjjanya, the rain god"[4].

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1 Arthaśāstra (Eng Ed.), Chap. 24, 117, p. 145.
2 S. B. H. Sukra. II, 317-319.
3 Chap. 54, 8 & 31, Vol, II, pp. 745.
4 Chap. 281, 6 & 34, Bib. Ind., Vol. II (1876) pp 42-43.

Next comes the question—whether all parts or different parts of a plant are to be planted in different seasons of the year ? Varāhamihira answers :

"In the months of Māgha and Falgoon (शिशिरे) are to be planted the trees whose branches and leaves are not developed (अजातशाखान्), in the months of Agrahāyaṇa and Pous (हैमन्ते) the plants with just developed branches (जातशाखान्), in the months of Śrāvaṇa and Bhādra (वर्षागमे) plants with well developed branches (सुस्कन्धान्)" 6.

Kāśyapa, another authority, is more clear on the above directions. He says :

"Plant in Śiśira those trees that are with undeveloped branches, and in Hemanta those with developed branches according to prescribed rules (विधानतः), and those that are provided with well developed branches (सुस्कन्धाः) during the rains."

Varāhamihira then directs that "Grafts should be smeared with cowdung. For transplanting (अन्यदेशेनीता रोपयेदित्यर्थं) the plants should be smeared from root to the top (आमूलस्कन्धलिप्तानां) with ghee (clarified butter), sesame oil, the honey of the kshudra variety of the bee of the Ushira (*Andropogon laniger*, or *A. Citrarum*), the Viḍaṅga, milk and cowdung"—evidently to stop loss of water by evaporation. 7.

His final direction in this connection is : "It is best to plant trees at intervals of 20 cubits, next at 16, and 12 cubits' interval is the minimum that can be prescribed." 12.

The Agnipurāṇa has also a similar prescription :

"It is best to plant trees at intervals of 20 cubits, an interval of 16 cubits is next, and worst is the interval of 12 cubits. Closely planted trees become fruitless (barren).[1]

Śukrāchāryya, too, prescribes that the good trees are to be planted at a distance of 20 cubits from one another, the middling at a distance of 15 cubits, and the ordinary ones at a distance of 10 cubits, and the youngest at a distance of 5 cubits." [2]

And why this minimum limit ? Varāhamihira answers it in śloka 13 : "The roots thereby becoming mingled together, will interfere with each other's function, and will become ill at work, and fruits will not be produced." (मिश्रैर्मूलैश्च न फलं सम्यग्यच्छन्ति पीड़िताः).

VIII. THE RULES FOR WATERING OF PLANTS

Watering of plants after transplantation is referred to both tn the Bṛhat-saṃhitā[3] and the Agnipurāṇa[4] which have the following prescription :

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1 Chap. 281, 8 & 9.

2 Śukraniti, IV. iv, 91-93. S.B.H. XIII, p. 165.

3 Chap. 54, sl. 9.

4 Chap. 281, sl. 7.

"After the trees are planted one should water them in the morning and evening in summer, at the end of the day in winter, and during the rainy season only when the earth is dried".

Śukrāchāryya[1] also gives the following directions: "The trees are to be watered in the morning and evening in summer, every alternate day in winter, in the fifth part of the day (i.e. afternoon) in spring, and never in the rainy season."

IX. CONSTRUCTION OF A GARDEN HOUSE

The construction of a garden and its dedication to public use is mentioned as early as in the Vedic period (R. V, III. 8. 11.). We find Sāṅkhāyana in his Gṛhyasūtra describing a Vedic ceremony—"The consecration of a garden" (V. 3, 2, et sqq).[2]

According to the Śukranīti (IV. iv, 104) a fair garden should always be laid out to the left of the dwelling house. But Vātsyāyana's Kāmasūtra has very nicely and elaborately dealt with this topic. After giving details of the construction of a house, he says that "attached to it there must be a vṛkṣavāṭikā (or puṣpavāṭikā), or a garden with wide grounds, if possible, where flowering plants and fruit trees can grow as well as kitchen vegetables (तत् भवनमासन्नोदकं वृक्षवाटिकावद्विभक्तकर्म्मकक्षं द्विवासं गृहं कारयेत्, 3, p. 114). In the middle of the ground should be excavated either a well, or a tank, or a lake (मध्ये कूपं वापीं दीर्घिकां वा खानयेत्) This garden is to be looked after by the mistress of the house. It is the duty of a good housewife, says Vātsyāyana, to procure the seeds of the common Indian kitchen vegetables and medicinal herbs and plant them each in its season (भार्याधिकारिकाधिकरणम्-28. p. 241). On neat and clear spots in the garden where the ground has been well dressed, the lady of the house plants beds of greens and vegetables and also clumps of the tall sugarcane, patches of stunted shrubs of the mustard and similar herbs, and the thickets of the dark Tamāla (परिपूतेषु etc. 6, p. 236). The flower garden equally receives her care; she has to see that it is laid out with beds of plants that yield an abundance of flowers,—those that regale the nose with their sweet perfume, like Mallikā. Jāti, or the Nava Mallikā, as well as those that delight the eyes, like the Japā with its crimson glory, or the Kuraṇṭaka with its unfading yellow splendour; besides these there should be in this garden rows of shrubs yielding fragrant leaves and roots like Vallaka and Uśira (कुब्जकामलक etc. 7, p. 236). In the garden there are arbors and sometimes vinegroves (वृक्षवाटिकां मृद्वीका मण्डपं) where are built sthaṇḍilas or raised platforms with pleasant and comfortable seats for rest or recreation (वृक्षवाटिकायां च स्थण्डिलानि मनोज्ञानि कारयेत्), flowers should be spread on these seats in these sweet sylvan retreats and a

1 Chap. IV. Sec iv, 105-106. S.B.H. XIII. p. 165.

2 S. B. E. 29, pp. 135-136.

swing be hung at a spot well guarded from the sun by its leafy arbor (खाल्तीर्ण प्रेङ्खादोला etc-4. p. 116). An abundance of various flowers should also be artfully arranged here and there, over the residential house which must be kept scrupulously clean, the floors should be beautifully smooth and polished, so as to soothe the eyes."[1]

The Matsyapurāṇa (Chap. 256, 3-10, pp. 299) also enjoins that "some space should be left all round the house. The front of a building should not be covered with trees, rather the back of the house should be so covered with them."[2]

Apart from the pleasure-gardens adjoining a dwelling-house, the parks and public gardens used to be regarded as important features of social life in Ancient India. "They were important enough to have given rise to special classes of skilled artisans who were given patronage and protection by the State (Śukra. II. 83—who construct parks, artificial forests and pleasure gardens).[3] The parks were meant for health, recreation, enjoyment, etc., and constituted the spending department of the Government pure and simple (Cf. Kāmandakī XIV,* 27-42). The gardens and parks were in charge of Superintendent (Ārāmādhipati, II. 240). He was "to know the causes of the growth (II. 317-19) and development of flowers and fruits, the method of planting and curing trees by the administration of proper soil and water at the suitable time, and the various uses of plants as medicinal drugs. He was assisted by gardeners whose business was to collect flowers and fruits after having duly nourished the plants with care (Śukra, II. 345-346). The knowledge of grafting was one of the qualifications of the gardener, and it came to be regarded as one of the 64 kalās or arts (IV. iii, 144).

X. AS A MEANS OF ASCERTAINING THE PRESENCE OF WATER IN A DREARY REGION

An elaborate chapter in the Bṛhatsaṁhitā[4] has been devoted to this topic :—

1. "Forthwith I will explain the meritorious and reputable art how to explore springs to obtain water. Just as there are veins and arteries in the human system (carrying blood) up and down, so there are passages (शिराः) within the bowels of the earth at different depths carrying water."

1 Social life in Ancient India—Chakladar, pp. 151-155 (1929) ; & also Kāmasūtra-Mahesh Chandra Pal, Cal. 1313 B.S.

2 Chap. 256, 3-10. S. B. H. XVI, p. 299.

3 S. B. H. XVI, p. 169.

4 Chap. 53, Bṛhatsaṁhitā, Vol. II, pp. 706-742. Some of the verses were translated by the author for the Book-Vanaspati, pp. 135-139 ; the rest are taken from Verspreide Geschriften, Vol. II, pp. 27-37—by Prof. H. Kern. 1913.

2. "Although all the water falling from heaven has the same colour and taste, yet it becomes different in taste, and of various colours, owing to the differences of soil (cf. Śusruta, i, 1. 9. sqq. p. 116). Hence an examination of it may be based on its analogy with the soil."

3. "Indra, Agni, Yama, Nirṛti, Varuṇa, Vāyu, Soma, and Śiva are to be considered the rulers of the quarters, east, south-east, and so on in succession."

4. "Eight veins are denominated after the ruler of the region ; a ninth in the centre is called the great vein. There are hundreds of other veins that issue from different quarters and are known by their own names."

5. "The veins running above the infernal regions and those that are found in the four cardinal points, are good ; those issuing from the intermediate points are evil. I now proceed to describe the distinctive features of the veins."

6. "If one finds a Vetasa plant in a waterless tract, one is sure to find water by digging the ground at a distance of 3 cubits to the west of it half a puruṣa below the earth." (One puruṣa is equal to 120 aṅgulas, i. e., about 7 ft.)

7. The (further) signs are : at a depth of half a puruṣa a pale yellow frog, then yellow clay, and a stone protuding from it,—beneath there is water."

8. "If you find a Jambu tree in such a land, dig a hole two puruṣas deep, 3 cubits to the north of it, and you will find water running in a vein eastward."

9. "If there be ant-hills close by to the east of the said Jambu tree, you will surely find sweet water in a pit dug 2 puruṣas deep, 3 cubits to the south of it.

10. "(The signs are) : a fish at a depth of half a puruṣa, and a pigeon-coloured pebble. There also will be dark clay and much water for a long time."

11. "If an Udumbara tree is seen, you are sure to find sweet water flowing in a vein, in a pit dug 2½ puruṣas deep, 3 cubits to the west of it."

12. "If an ant-hill is found to the north of an Arjuna tree, water will be found there 3½ puruṣas under the earth, at a distance of 3 cubits to the west of that tree."

13. "(The indications are) : a great fair-hued lizard at the depth of half a puruṣa ; gray clay one puruṣa underground ; further, black, yellow, white clay blended with sand ; at last water, one may predict, in immense quantity at a depth of 2½ puruṣas."

14. "If Nirgundi tree is found with an ant-hill, one will find tasteful water in a pit 2 puruṣas deep, 3 cubits towards the south."

15. "A rohita fish at half a puruṣa, then red brown clay, further pale

yellow clay, then sand mixed with gravel (are the indications) ; beneath this is water".

16. "If an anthill appears to the east of a Jujubé tree, one may announce that there is water on the west side at 3 puruṣas. A fair house-lizard (being found) at half a puruṣa (is a further indication)."

17. "If a Vadari and a Palāśa tree are found together, you will find good water, 3 puruṣas under the earth, 3 cubits towards the west of the former.".

18. "When a Vilva and an Udumbara tree are found growing together, you will get water 3½ puruṣas under the surface of the earth at a distance of 3 cubits from the trees"

19-20. "If an anthill is seen near the oppositifolious fig tree, there is a water vein running to the west at a depth of 3¼ puruṣas. (The signs are) : whitish clay, and a milk-coloured stone. At 1½ puruṣa will be found a mouse of a colour like the water-lily".

21-22. "Where in a waterless region a Kampilla tree is seen, a southern vein runs at the distance of 3 cubits to the west. First appears (as an indication) clay of a colour like blue-lotus and like pigeon, at one cubit is a fish with the smell of a he-goat—below there is a little brackish water."

23. "Two cubits more to the northwest of a Bignonia is a water vein bearing the name of Kumudā and flowing at 3 puruṣas".

24. "If an anthill rises near a Bibhîtaka tree, on the south side a vein is to be seen on the east at 1½ puruṣa."

25-26. "In case an anthill is found west of the same tree, there will be a vein in the north, a cubit therefrom and at 4½ puruṣas. The indications are:) a white scorpion, and a suffron-hued stone, at one puruṣa. In the westerly direction also (there will be) a vein which will dry up after 3 years."

27. "Where to the north-east of a Kovidāra tree is found a white anthill with Darva (grass) over it, water will be found between them 5½ puruṣas under the ground."

28. "As signs are to be mentioned: a snake of the colour of lotus calyx at one puruṣa, red earth, and a coryndon stone."

29-30. "If an Echites is surrounded by anthill, it may be predicted that to the north of it is water at 5 puruṣas ; the signs being a yellowish green frog at half a puruṣa, earth like yellow orpiment and a stone of the colour of a dark cloud—under it is a northern vein yielding good water."

31. "If a frog is detected living beneath a tree one will surely get water 4½ puruṣas under the ground towards the north of that tree."

32. "A frog being seen under any tree shows that water is to be found at a cubit's distance at 4½ puruṣas. At one puruṣa will be discovered an

ichneumon, then dark clay, further on yellow, at last white clay, and a stone of the colour of a frog."

33-34. "In case a snake's abode appears standing south of a Karañja tree, there is a vein in the south at 2 cubits, at 3½ puruṣas' depth. At half a puruṣa is a tortoise, and there will then be discovered, first an eastern vein, further on a northern vein with sweet water, beneath lies a yellowish green stone ; then again water."

35-36. "If an anthill inhabited by a serpent is found to the north of a Madhuka tree, you will get water at a distance of 5 cubits from the tree, 7½ puruṣas under the ground. (The signs are) :—first a big snake at one puruṣa, then deep purple earth, and a stone of the colour of dolichos. Beneath is an eastern vein supplying water which is always foaming."

37. "Where a smooth anthill combined with sacrificial and bent grass stands south of a Tilaka tree, an eastern vein will be discovered in a westerly direction at 5 puruṣas'"

38-39. "In case an abode of snakes is stationed west of a Nauclea, there is water 3 cubits from it at 5¾ puruṣas. It is a northern vein that flows there having a smell like iron, and inexhaustible. (As signs will be found) :— a gold-tinged frog at one puruṣa, and then yellow clay."

40. "If you find a palmyra tree, or a cocoanut tree, with anthills, you will have a vein of good water flowing at a distance of 6 cubits to the west of either of the trees 4 puruṣas under the ground."

41-42. "On perceiving an abode of snakes on the west side of wood-apple trees one may predict that water will be discovered at 7 cubits' distance by digging 5 puruṣas deep. (The signs are :) a spotted snake at one puruṣa, black clay and a protruding stone, and white clay. Underneath runs a vein from the west, then another from the north."

43-44. "Should a Jujube tree or a snake's abode appear to the left (i. e. northwards) of an Aşmāntaka tree water will be found 6 cubits distant, in a northernly direction at 3½ puruṣas ; (the indications being) a tortoise at one puruṣa, a grey stone, clay mingled with sand. The first vein issues from the southern quarter ; then another from the north."

45-46. "Should an anthill rise on the left side (i. e. northwards) of a yellow sandal tree there will be water 3 cubits to the east from thence at 5¾ puruṣas. (The indications are :) a black snake at one puruṣa, yellow clay and a emerald-like stone ; then black earth. First there will be found a vein coming from the west, afterwards another from the south."

47. "Where in a waterless region, the characteristics of an aquatic vegetation, or graceful Andropogan and bent grass, are conspicuous, there is water at one puruṣa."

48. "Bhārgi, Tribṛtā, Dantī, Śūkarapādi, Takṣmana, and Navamallikā

denote water to be near, 2 cubits from thence, to the south at 3 puruṣas."

49. "There is water by the trees that are sappy, have long branches, or very dwarfish, or very spreading. And there will be no water near the trees that are sickly, have unhealthy leaves, and vapid."

50-51. "Water will be found 4½ puruṣas below the ground at a distance of 3 cubits to the north of the following trees surrounded by anthills : Tilaka, Āmrātaka, Varuṇaka, Bhallātaka, Vilva, Tinduka, Añkola, Pindāra, Śirīṣa, Arjuna, Paruṣaka, Vañjula and Atibalā."

52. "Where a plot is grown with grass in the midst of a grassless plain, or where a grassless spot is conspicuous in the midst of a soil abounding with grass, a water-vein is indicated ; or one may predict that a treasure will be discovered at the spot."

53. "It a thorny tree (e. g. Khadira) is found in the midst of thornless ones (like Palāśa), or a thornless tree is found in the midst of thorny ones, water will be found 3 puruṣas under the ground at a distance of 3 cubits to the west of such a tree."

54. "Where the soil, being struck by the feet sounds deep there is water at 3½ puruṣas ; the vein issues from the north."

55. "If one of the branches of a tree is bent or faded, you are sure to find water beneath the branch after digging 3 puruṣas."

56. "A tree that shows unnatural symptoms in its fruits and blossoms, points to a vein, 3 cubits to the east, at 4 puruṣas ; under the surface (will appear) a stone and yellow earth."

57. "If a Kaṇṭakārika plant is found without thorns and with white flowers, water will surely be found under it at a depth of 3½ puruṣas.

58. "Where in a waterless country a betelnut tree shows two tops, it may be asserted for certain that on the west side there will be water at 3 puruṣas."

59. "In case you see a white blossoming Pterospermum or Butea there will be water 2 cubits to the south at 3 puruṣas."

60. "Where the ground steams or smokes, there is water at 2 puruṣas, and it may be stated that the vein will yield an abundant supply of water."

61. "Where on a single spot of a field, the sprouting corn perishes, or looks thin and exceedingly pale, there is a great vein at 2 puruṣas."

62. "Now am I to set forth how a vein is discovered in a desert country, where the water-veins run below the earth's surface in the guise of camel's neck (i. e. syphon)."

63-64. "If an anthill is seen northeast of a Pilu tree, there will be water to the west ; you may hold it for certain that the vein flowing in the north is at the depth of 5 puruṣas. The first indication is a frog,

then red-brown clay, after that yellowish-green clay ; at one puruṣa lies a stone ;—there certainly is water underneath."

65-66. "Should the anthill stand on the eastern side of the Pilu tree then it may be predicted that in a southerly direction there is water at 7 puruṣas at a distance of 4 cubits and a half. (The signs are :) at one puruṣa a snake, half white, half black, one cubit long. A vein from the south there supplies plenty of brackish water.'

67. "From a snake's abode standing to the north of a Karīra tree one may infer that there is sweet water south-ward at 10 puruṣas, the sign being a yellow frog at one puruṣa."

68. "If to the west of an Andersonia tree there is an abode of snakes, you will find, at 3 cubits more to the south after digging 12 puruṣas a western vein of brackish water."

69. "An anthill being visible to the east of an Arjuna tree indicates that you will come at a vein at a cubit's distance to the west by digging 14 puruṣas. (An indication is)—a great brown lizard at one puruṣa."

70-71. "Or, if there be a snake's abode to the left (i. e. north) of any tree denominated after gold, there is water 2 cubits from thence in the southern direction at 15 puruṣas. The water is brackish. (The signs under the surface are) : an ichneumon (nakula) at half a puruṣa, and a copper-coloured stone along with red earth. The vein is one issuing from the south."

72-73. "Where a jujube tree and an Andersonia stand conjoined even without an anthill, there is water 3 cubits further to the west at 16 puruṣas. (Below the surface will be discovered)—first water of good taste, produced by a southern vein, then a northern vein ; at half a puruṣa a leaden-hued stone, white clay and a scorpion."

74. "Should a jujube tree appear conjointly with a Karīra there will be water in the west, 3 cubits off at 18 puruṣas. It is a north-eastern vein rich in water."

75. "On the east side of a jujube combined with a Pilu water will be found never drying, but brackish, at 20 puruṣas."

76. "Where an Arjuna stands conjointly with a Karīra, or with a Bilva, water will be found 2 cubits further off in the west at 25 puruṣas.".

77. "Should it happen that bent grass or sacrificial grass on the top of an anthill appear of a pale yellow colour, then sink a well in the middle thereof, for there is water at 21 puruṣas."

78. "Where bent grass is seen growing on an anthill near a Kadamba tree, there is water 3 cubits further off, to the south at 25 puruṣas."

79-80. "If an Andersonia conjointly with 3 other trees of various kinds is seen in the midst of 3 anthills, there will be water to the north, at an

interval of 4 cubits 16 digits, and at a depth of 40 puruṣas, where a stone will be found, under which the vein runs."

81. "At a distance of 5 cubits in a westerly direction from the spot where a knotty Sami tree is seen having an anthill on its northern side, there will be water at 50 puruṣas."

82. "If the middlemost one of the 5 anthills stationed at one place, be white, it indicates a vein at 55 puruṣas."

83. "Where a Śamî tree has a Butea near it, water is on the west side at 60 puruṣas. First (you will discover below the surface) a snake at half a puruṣa, afterwards yellow clay mixed with sand."

84. "One cubit eastward of a spot where a white Andersonia is surrounded by an anthill, will be water at 70 puruṣas."

85. "Where a white Śamî shows a great many thorns there is water in a southerly direction at 75 puruṣas, while a snake will come to sight at half a puruṣa."

86. "The existence of water in a woody tract of land may not be determined on such indications as apply to a desert only. The number of puruṣas which has been given in stanza 6, sqq., has to be doubled in the cases of a desert."

87-89. "A roseapple tree and the plants Tribṛtā, Mūrvā, Siśumāri, Sarivā, Śivā, Śyāma, and such Vîrudhas as Vārāhî, Jyotiṣmati, Garuḍavegā, Sūkarika, Māṣaparṇî, Vyāghrapadā growing by a snake's abode, denote water to be near the anthill 3 cubits off to the south at 3 puruṣas. The latter number applies to a watery country, but for a woody tract, the depth is to be fixed at 5 puruṣas, and for a desert at 7 puruṣas, if the indications be the same."

90. "Where same ground, otherwise uniform and devoid of grass, trees, anthills or shrubs, contains a piece of unusual appearance, there is water."

91. "And where the earth is smooth, low, sandy or resounding there is water at 4½ or 5 puruṣas."

92. "To the south of smooth trees there will be water at 4 puruṣas. The same may be said should a tree in the midst of a thick wood show uncommon symptoms."

93. "Where the soil slopes downwards, there is water at 1½ puruṣa in the case of a woody or watery tract of country ; where insects are frequent without having their abode in that place, there too is water."

94. "An isolated cold spot in a warm ground denotes cold water; a single warm spot in a cold ground, warm water at 3½ puruṣas; and at 4 cubits' distance if a rainbow, fish or anthill be conspicuous."

95. "If in a row of anthills one is prominent over the rest, there is water

beneath it. There is water also, where the corn of the field withers or does not come up at all."

96. "A Banyan, Butea and a Fig standing conjoined denote water at 3 puruṣas. The same may be said from a Vata and Pipal appearing in close connexion. The vein lies northward."

97. "A well being situated in the south-east of a village or town is likely to occasion constant danger from fire and men."

98. "An well in the south-west causes loss of children, and one in the north-west threatens the wife ; wells in any other direction are productive of good."

99. Thus much have I composed in Ārya couplets, with constant reference to a work, "Exploration of watersprings," by the seer Sāraswata. I will now expound the system of Manu also, in Vṛtta verses."

100-102. "The region where trees, shrubs and creepers are graceful possessing leaves that are untorn (entire) there are veins of water 3 puruṣas below the ground ; or where are Sthalapadma, Gokṣura, Uśīra, Kula with Gundra, Kāśa, Kuśa, Nalika, or Nāla (all grasses); or where there are Kharjura, Jambu, Arjuna, Vetasa, or trees, shrubs or herbs with milky juice, or Chattrā, Hastikarṇa, Nāgakeśara, Padma, Nîpa, Naktamāla with Sindhuvāra, or Bibhîtaka, Madayantíka there will be found water 3 púruṣas below, even if it be on the mountain upon another mountain, i. e. on a very high ground."

103. "Where the soil abounds in reed grass, Kāśa and Kuśa, and consists of blue clay mingled with gravel, or where the clay is black or red, there is much delicious water".

104. "A copper-coloured earth mixed with gravel yields water of an astringent taste ; red-brown earth brackish water ; a pale yellow ground is an indication of salt, and a blue soil of sweet water."

105. "Where there are Sāka, Aśvakarṇa, Vilvasarjja, Śrīparṇi, Ariṣṭa, Dhaba, Śiṁsapā with leaves torn (i. e. unhealthy), and where the trees, shrubs and creepers look ungraceful, water is to be inferred to be off from that locality."

106. "A soil, the colour of which resembles, that of the Sun, fire, ashes, camels or asses, is said to be waterless. If the ground be red and Kaṙi'ra tree exhibits red sprouts and a milky sap, there is water under a stone."

107. "A rock in colour like to Lapis Lazuli, kidney beans, clouds, the eyes of a peacock's tail. or to a nearly ripe fruit of the fig, or to a black bee, or collyrium, or of redddish brown hue, has much water near it."

108. "A rock showing the colour of pigeons, wax, ghee, or of a linen cloth, or of the Soma plant,—such a one, also, will soon produce inexhaustible water."

109. "A rock exhibiting red and variegated speckles, being of a pale yellow colour, or tinged like ashes, camel, ass, or like a bee, Aṅguṣṭhika blossom (i. e. bluish red), or like the Sun or fire, is waterless."

110. "Of good promise are those rocks which show the hue of moon-light, crystal, pearl, gold ; and those which appear like sapphire, vermilion, antimony, and those which have the colour of the beams of the rising Sun and yellow orpiment. Thus speaketh the sage in the next verse :"

111. "Indeed, these rocks are extremely hard, beneficial and always frequented by Yakṣas and Nāgas. Never will drought threaten those kings in whose dominions they are found."

112. "When a stone resists splitting, then kindle a fire with fuel from Butea and Ebony. On being made red hot and sprinkled with milk and water the stone will burst."

113. "Or, boil water with ashes from Mokṣaka (Maruvaka) ; when the stone being heated is seven times sprinkled with this decoction mixed with potash from reed grass, it will burst."

114. "Butter-milk, sour gruel, spirituous liquor, dolichos and jujube fruits mixed together and left to ferment for a week, will, by being used in sprinkling. surely make a stone burst, after it has been heated".

115. "Take leaves and barks of Nimba, stalks of Sesamum, Apāmārga and Tinduka fruits with Guḍūchī. The potash of all these liquefied with the urine of cows, when poured six times over a glowing stone, the stone will split."

116. "First of all one should compound together these three substances : exudation of Ākanda, ashes of a lamb's horn, and the stools of pigeons and mice. And should besmear therewith the sword (or cutting instruments) and then temper with oil ; if a sword is thus prepared it will not break even when one strikes a piece of granite with it."

117. "If one prepares a compound of ashes of plantain tree and whey, keep it for a day and night, and besmears the sword next day therewith ; then the sword becomes so hard that it will not break even when one strikes another sword with it."[1]

118. "Embankment (of a very big pond) extending in a direction from east to west retains the water much longer than one running from north to south, because the latter is more often exposed to rupture by the agency of billows roused by the wind. Let him, who wishes to make such a pond, stem the conflux of water by means of a strong timber, or make the dams on every side from stones and the like, the soil being rendered hard by the trampling of elephants, horses, etc."

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1 "The far-famed Damuscus blades were of Indian steel manufactured in India"—Jour. Roy. Asia. Soc. Feb. 16, 1839.

119. "The banks must be shaded by Arjuna, Vata, Āmra, Plakṣa, Kadamba, Nichula, Jambu, Vetasa, Nīpa, Kuruvaka, Tāla, Aśoka, Madhūka, and Vakula."

120. "On one side let a flood-gate be made, in such a manner, that the passage be built with stones and let a pannel without fissures be fixed in a frame and covered by grit heaped up against it."

121. "(For clearing the water) let a mixture of Añjana, Musta, Uśíra, powder of Rāja Kośātakí, Āmalaka combined with Kaṭakaphala be put into a well[1]".

122. "If the water is muddy, sharp, salt, bad of taste, or not pleasant of odour, it will by this mixture become clear, tasteful, very nice of smell, and possessed of other good qualities."

123. "The asterisms which are propitious when commencing the sinking of wells are: Hastā, Maghā, Anurādhā, Puṣyā, Dhaniṣṭhā, Uttara-phalgunī, Uttarāṣāḍā, Uttarabhādrapadā, Rohinī and Śatabhiṣā."

124. "He (for whom a well is made) having made an oblation to Varuna, has, first, to cause a plug of banyan wood or rotung to be put into the soil at the place of the vein, while he honours it with flowers, perfumes and incenses."

125. "I have formerly (Chap. 23), after studying the opinions of Baladeva and others, set forth how rain water is got after full-moon's day of Jyaiṣṭha. The manner how to find spring-water has, secondly, been told by me, Varāha-Mihira, in this chapter, thanks to the sages."[2]

The art of ascertaining the presence of water through its vegetable accessories, and digging artesian wells reached a great perfection in ancient India. It became a matter of common knowledge as would be evident from the following anecdote summarized from a Jātaka story[3] :—Once upon a time the Bodhisattva born as a merchant set out on a mercantile adventure. While passing through a wilderness he lost his wood and water. In his eager search for water he "ranged to and fro, while it was still early and cool until he came on a clump of kuśa grass." "This grass" thought he, "can only have grown up here, thanks to the presence of water underneath." He caused a hole to be dug and "up rose the water in the hole till it was as high as a palm tree."

1 Cf. Suśruta's recipe ; S. S. I. xlv. English Translation Vol. I, pp. 423-424.

2 On an analysis of the whole chapter we find elaborate directions are given as to (1) the selection of the soil for digging or boring a well (artesian or otherwise) in a waterless tract ; 2) the ways and means of such digging or boring and construction of special apparatus for the purpose ; 3) directions as to the erection of a dam with flood-gates for storing water, and finally 4) recipes for clearing, disinfecting and purifyng, and perfuming the water for human consumption.

3 Fausböll no. 2, Vaṇṇupatha Jātaka, Vol. I, Cambridge Ed. 1895.

XI. NOURISHMENT & XII. KUNAPA WATER

The origin of manuring the soil, a necessity for the nourishment of plants, can be traced as early as to a verse of the Atharva Veda (II, 8.3). But a more elaborate instruction in manuring is given in the Bṛhatsaṁhitā[1], the Agnipurāṇa[2], the Kṛṣi Saṃgraha of Parāśara[3] and the Śukranīti[4].

"To promote inflorscence and fructification a mixture of one adhaka (64 palas) of sesame, two adhakas (128 palas) of excreta of goats or sheep, one prastha (16 palas) of barley powder, one tulā (100 palas) of beef, thrown into one droṇa (256 palas) of water, and standing over for seven nights, should be poured round the roots of the plant. The measures given are for one plant." This measure is for all kinds of plants (…वनस्पतेः वल्लीगुल्मलतानां च फलपुष्पाय सर्व्वदा). 17 & 18.

The Agnipurāṇa has almost precisely the same thing :

"To increase the production of flowers and fruits one should sprinkle ghee with cold milk, also a mixture of sesame, excreta of goats and sheep, barley powder and beef, thrown into water, and standing over for 7 nights should be poured round the roots of the plant (गोमांसमुदकञ्चैव सप्तरात्रं निधापयेत् etc.) 11 & 12.

It further adds that mango is specially benefited by cold fish-washings (मत्स्योदकेन शीतेन आम्राणां etc.), and also prescribes pouring of fish-washings as a general measure for luxuriant growth of trees. (मत्स्याम्भसा तु सेकेन वृद्धिर्भवति शाखिनः).

Parāśara gives the following direction :

"On an auspicious day in the month of Māgha after taking out with the help of a spade the manure from a dung-heap, one should dry them in the sun and grind them. In the month of Fālgooṇa these are then burried in the fields and on the eve of sowing (seeds) should apply them to the soil, else the yields of crops will not increase." 107—109.

Śukrāchāryya has the following recipes : As a general measure to cause healthy growth, the plants should be nourished "by stools of goats, sheep, cows, water as well meat." (94) "If trees have their fruits destroyed the pouring of cold water after being cooked together with Kulattha, Māṣa, Mudga (all pulses), Yava and Tila would lead to the growth of flowers and fruits." (107—108). "Growth of trees can be helped by the application of water with which fishes are washed and cleansed (109). The powder of the dungs of goats and sheep, the powder of Yava, Tila, beef as well as

1 Chap. 58, Translations are Dr. Seal's.
2 Chap. 281.
3 Slokas 107, 108 and 109. Bangabasi Ed. Cal. 1322 B. S
4 Śukra IV, iv. 94, 107—112.

water should be kept together (undisturbed) for seven nights. The application of this water leads very much to the growth in flowers and fruits of all trees (110-112)."

Dr. Seal concludes : these elaborate recipes are emperical contrivances for supplying the plant with the requisite nitrogen compounds, phosphates, etc., these being potentially contained in the mixtures and infusions prescribed."

XIII. TREATMENT OF TREES—TO BE READ ALONG WITH VIII. PROTECTION OF TREES

Treatment of plant-diseases as a distinct branch of knowledge was recognised by our ancestors at a very early date. Destruction of plants by fungi and pestiferous insects, are referred to in ancient literature.

For the first time, in the Vedic literature, we find a hymn in Atharva Veda (Bk. VI, 50) which refers to the destruction of corns by vermins, such as, the *tarda* (borer) the *jabhya* (snapper), the *upakvasa* (a noxious insect injurious to seeds-Vedic Index), the *vyadvaras* (rodents), *samanka* (hook), the mole, and such other devourers of corn[1].

Sāyana's commentary thereon gives a long list of pestiferous insects (Kāuśik.) 51, 17-22—मूषकशलभपतङ्गटिट्टिभकीटककोटिकाहरिणरुरुशल्यकगोधागोक्षस्यादि सस्य विनाशकानि[2] ।

The next definite mention of plant diseases, as such, is found in the Vinaya Piṭaka (C. X. 1. 6.). Here by way of analogy Lord Buddha mentioned the two most important of cereal diseases, namely, the "mildew" and the "blight". The text is well worth quoting here : "And just Ānanda, as when the disease, called mildew, falls upon a field of rice (corns) in fine condition, that field of rice does not continue long; just so etc. And just, Ānanda, as when the disease called blight falls upon a field of sugarcane in good condition, that field of sugarcane does not continue long ; just so, etc."[3] It may here be pointed out that in the old Testament there are about half a dozen references to the existence of "blights" and "mildews", and Aristotle (350 B. C.) knew of the epidemic nature of wheat rust.[4]

Next in the Śukranitī (IV. ii. 56-57) we find the following text : "He (king) should not preserve those (grains) that have been attacked by poisons, fire or snows, or eaten by worms or insects, or those that have been hollowed out, but should use them for immediate use".[5]

1 Harvard Oriental Series. Vol 7. Eng. Tran. Whitney.

2 The Kauśika-Sūtra of the Atharva Veda, Ed. Maurice Bloomfield. The Journal of the Amer. Soc. Vol XIV. 1890. New Haven. See also S. B. E. Vol. 42, pp. 485-487.

3 S. B. E. Vol 20, p. 326.

4 The Encyclopaedia Britannica, 13th Ed. Vol. 21-22. Plant Pathology, p. 754.

5 S. B. H. Vol 13, p. 140.

In the Arthaśāstra,[1] Bṛhatsaṃhitā[2] and the Agnipurāṅa,[3]—all non-Botanical treatises, we find distinct sections devoted to "Vṛkṣāyurveda", or "the treatment of plants in health and diseases.[4] In the Arthaśāstra we find that the Officer in charge of the department of Agriculture (सीताऽध्यक्ष) must be versed in kṛṣitantragulmavṛkṣāyurveda (कृषितन्त्रगुल्मवृक्षायुर्वेद:). Varāhamihira, author of the Bṛhatsaṃhitā, gives the following etiology and diagnosis of the diseased condition of a plant (एतैश्चिह्नै स्तरु: सरोगोज्ञेय:) :—

"Cold climate (low temperature), wind (dryness) and sun (high temperature) are the causes of diseases. (When the plant is diseased), the leaves become yellow (etiolated), buds (प्रवालानां) do not develop, or their growth arrested, branches become dry and the sap exudes." 14. Kāśyapa, another authority, says, "those plants that have yellow leaves (पाण्डुरै: पत्रै श्च), that are fruitless and denuded of leaves,—and these caused by coldness, excessive heat, too much rain, dry wind, and by the intermingling of roots of different plants, are to be known as diseased, and are to be treated accordingly."

He then prescribes the following remedies :

"To cure the plants first scrape off, or otherwise remove, the parts affected with a knife, then apply mud kneaded with ghee and viḍaṅga to these parts, after which milk diluted with water should be poured at the roots." 15. The Agnipurāṇa has almost a similar prescription : शस्त्रेनादौ हि शोधनम्। विड़ङ्गघृतपङ्काक्तान् सेचयेच्छीतवारिणा). 9 & 10.

Varāhamihira then prescribes a recipe for the cure of barrenness. He recommends that "as a remedy against barrenness (cause may be anything) a hot decoction should be made of Kulattha, Māṣa, Mudga, Tila and Yava, which when cooled should be poured round the roots." 16.

Almost an identical recipe occurs both in the Śukranīti and the Agnipurāṇa. Thus :

The Śukranīti—"If trees have their fruits destroyed, the pouring of cold water after being cooked together with Kulattha, Māṣa, Mudga. Yava and Tila would lead to the growth of flowers and fruits" (IV. iv, 107-108).

The Agnipurāṇa—"Viḍaṅga and ghee kneaded with mud and sprinkled with cold water together with Kulattha, Māṣa, Mudga, Yava, and Tila should be used in a case of barrenness." 10.

As a prophylactic measure the Agnipurāṇa further prescribes :—

"Viḍaṅga mixed with rice, fish and flesh,—all these mixed together constitute a remedy invigorating to the plants and curative of their diseases." 13.

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1 Chap. 24. Eng. Tran. Syama Sastri (1915) p. 142.
2 Chap. 54, Vol. II, pp. 743, et sqq.
3 Chap. 281, pp. 43. Biblio. Ind. Vol. II, 1876.
4 Vanaspati—Majumdar, pp. 1-7.

Guṇaratna (circa 1200 A, D.), the commentator of Saḍdarśana Samuccaya draws the following analogy to prove the existence of consciousness in plants :

"Just as human body is subject to jaundice, dropsy, shofa (?) emaciation, and defects (dwarfness) of fingers, nose, etc., etc., so also plants suffer from similar diseases, such as inception of disease, displacement or dislocation of flowers, fruits, leaves and bark."

"And just as by the application of the appropriate remedies unnatural growth, deterioration, wounds, fractures, etc., etc., can be cured, so also in plants by the application of proper drugs as prescribed in the Vṛkṣāyurveda."[1]

Unfortunately for us this treatise on the treatment of plants referred to in the Arthaśāstra, Śukrunīti, Bṛhatsaṁhitā, Agnipurāṇa and other non-Botanical treatises is no longer available.

XIV. BOTANICAL MARVELS

Botanical marvels constitute an interesting subject by itself and it has received sufficient attention in our ancient literature.

Varāhamihira gives us a few recipes by the application of which some botanical wonders may be produced. Thus he says that "any seed, being steeped a hundred times in a paste of Alangium fruit, or in its oil, or in (the dregs and oil of) Cordia, will, when planted in clay impregnated with hail-water, sprout instantaneously and what wonder, that the branches should be loaded with fruits ? 27 & 28.

When you wish to plant Cordia seeds take the precaution of stripping them of the shell, and of steeping them in the shade, seven times in water mixed with a thick sauce from Alangium fruits ; then rub them with .buffalo's dung and lay them in manure. Being afterwards planted in clay soaked with hail water, they will produce fruits (so to say) in a day.[2] 29 & 30.

Prof. Benoy Sarkar writes, and we completely agree with him, that "if the complete transformation of orders and genera be absurd, that of species is not so, and has been verified by experiments. With the horticultural miracles guaranteed by Varāhamihira & Śārṅgadhara of old we are tempted to compare the epoch making new creations in plant life by Luther Burbank, the American plant-breeder of modern times. The wonderful achievements of this great and unique genius include among other creations the following : the improved thornless and spineless edible cactus, food for man and beast, to be the reclamation of the deserts of the world ; the primus berry, a union of rasp-berry and blackberry, *the first recorded instance of the creation of a new species,* a tree which grows more rapidly than any other tree ever known in the

1 Biblio. Indica, New Series, 1151 (1907).

2 Chap. 54.

temperate zones of the world ; a dahlia with its disagreeable odour driven out, and in its place the odour of the magnolia blossom substituted ; a chestnut tree which bears nuts in eighteen months from the time of seed planting, etc., etc.[1]"

Like other branches of applied art or science in ancient India Arbori-Horticulture had developed under the patronage of kings and aristocracy. Marvels or extraordinary results were achieved by the specialists and experts from time to time in different branches, and, as the ancient records clearly indicate, did not pass unnoticed or unrewarded. The Uddānapālas (Uyyānopālas) or experts under whose charge the royal gardens were placed had ample opportunities of making their experiments, and incentive to producing marvellous results was, of course, the expectation of recognition and reward. We have not a full information of all Botanical marvels achieved by the ancient Indian experts in Horticulture. But there is one Buddhist Birth-story, the Dadhivāhana Jātaka, which records the interesting instance of a twofold marvel : (1) of bringing in conditions by which a mango tree bearing wonderfully sweet fruits began to bear fruits with bitter taste, and (2) of restoring the former sweetness of the fruits. Whether scientifically correct or not the means whereby this change was made possible, are said to have been this : that the tree was caused to be closely surrounded by nimba trees so that the roots of the latter might form an intimate connection with those of the mango tree, and to be entwined and overgrown with the Paggava plant (evidently a parasitic creeper) to inject its bitter sap into the host plant. In restoring the normal condition of the mango tree not only the nimba trees and Paggava creeper were completely removed, roots and branches, but the whole infected soil was also replaced by fresh nutritious earth, well scented.

The Brith-Story further mentions 'the early blossoming of trees out of season' (akālapupphani pupphapento) and 'the early bearing of fruits out of season' (akālaphalāni gaṇhāpento), as two among the accomplishments of the expert. In the same connection we learn that the improvement of a species or a variety depends primarily on the selection of seeds, the soil and the condition under which plants grow.

XV. ASCERTAINMENT OF THE PRICES OF THINGS

A chapter[2] in the Bṛhatsaṁhitā is devoted towards the subject, which is translated below :—

1. "One can infer the cheapness of commodities and success of crops by

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1 S. B. H. 16, pp. 178-179 ; for details see New Creations in Plant Life by Harwood. Macmillan & Co. 1905.

2 Chap. 29, Vol. I, pp. 422-426. Sanskrit ed. Here the translation is author's. See also Verspreide Geschriften—H. Kern, Vol. I, pp. 268-269, Eng. trans.

means of looking at the abundance of the growth and development by flowers and fruits of trees (वनस्पतीनां)".

One can infer the cheapness—

2. "Of Kalama Śāli from the abundant growth of flowers and fruits of Sāla ; of red Śāli from red Aśoka ; of Pāṇḍuka from Dugdhika ; and of Sūkaraka from blue Aśoka".

3. "Of Yavaka from Nyagrodha, of Ṣaṣṭika from Tinduka, and of all cereals from Aswattha".

4. "Of Tila and Māṣa from Jambu ; of Priyaṅgu from Śiri'ṣa ; of wheat from Madhuka ; of barley from Saptaparṇa".

5. "Of cotton from the abundance of Atimuktaka and Kunda, of Sarṣapa from Asana, Kulattha from Vadari' and Mudga from Karañja".

6. "Of Atasī from the flowers of Vetasa, Kodrava from the flowers Palāśa, Śaṅkha, Mukta, and silver from the Tilaka, and Śaṇa (hemp) from Iṅgudī".

7. "Of elephants from Hastikarṇa, and horses from Aswakarṇa ; kine from Pātalā and goats and lambs from plantain".

8. "Of gold from the flowers of Champaka ; cheapness or abundance of Bidruma (coral) from Bandhujiva, Bajra (diamond) from the overgrowth of Kuruvaka, and Vaidūryya (beryl) from Nandikāvartta".

9. "One can infer the cheapness of Mauktika (pearls) from the Sindhuvāra ; (longivity and prosperity of artists (कारुकाः) from the Kusumbha, and those of Raja from the red lotus and of minister from the blue lotus."

10. "(Prosperity of) a Śreṣṭhī is to be inferred from the Svarṇapuṣpa, of the Brahmanas from the lotus, of the Purohita (king's spiritual preceptor) from the white lily ; of the Senāpati from the Sāugandhika, and increase of gold (wealth) from the Arka."

11. "(General) well-being is indicated by the mango, danger (fear) by the Bhallātaka, recovery (from illness) by the Pîlu, famine by the overgrowth of Khadira and Śamī, and good rain by the Arjuna."

12. "Abundance of crop by the flowers of Picumanda and Nāgakusuma, good air (climate) by Kapittham, fear of drought (अवृष्टिभयम्) by Nichula, and epidemic (fear of disease) by Kutaja."

13. "Of Ikṣu by the flowers of Darva and Kuśa ; fear of fire by Kovidāra, and the increase of courtesans by the overgrowth of Śyāmālatā."

Signs of coming rains (वृष्टिलक्षणम्) :—

14. "When vṛkṣas (trees), gulmas (shrubs and herbs), and latās (creepers) become full of snigdha (graceful) and niśchidra (entire, untorn) leaves, (it is sure) that rains are coming ; and when the plants (trees, etc.) bear leaves that are dry, ungraceful (रूक्षः), torn with many holes (छिद्रैः), it predicts scarcity of water, i.e., of coming drought."

UPAVANA-VINODA

THE TEXT

अथ वृक्षायुर्वेदः ॥८२॥

उपवन-विनोदः ॥

पुंसां सर्वसुखैकसाधनफलाः सौन्दर्य्यगर्वोद्धुर—
क्रीड़ालोलविलासिनीजनमनः स्फीतप्रमोदावहाः ।
गुञ्जद्भृङ्गविनिद्रपङ्कजभरस्फारोल्लसद्दीर्घिका—
युक्ताः सन्ति गृहेषु यस्य विपुलारामाः स पृथ्वीपतिः ॥१
नवं वयो हारि[a] वपुर्वराङ्गनाः
सखा कलावित्कलवल्लकीस्वनः ।
धनं हि[b] सर्वं विफलं सुखैषिणो
विना विहारोपवनानि भूपतेः ॥२
शास्त्राणि तावदवलोक्य मया मुणीणा—
मर्थः स एव गदितः परमार्थयुक्तया[c] ।
धनं[d] विलोक्य निखिलं च विचारयन्तः
सन्तः स्वभावसरला मुदमाप्नुवन्तु ॥३

अथ तरुमहिमा ।[1]

बहूभिर्वत किं जातैः पुत्रैर्धर्मार्थवर्जितैः ।
वरमेकः पथि तरुर्यत्र विश्रमते जनः[e] ॥४
दशकूपसमा वापी दशवापीसमो ह्रदः ।
दशह्रदसमः पुत्रो दशपुत्रसमो द्रुमः ॥५

(a) गणनाथ—नवं मनोहारि
(b) ,, धनानि
(c) ,, परमा °युक्त्या ।
(d) ,, एवं
(e) ,, विश्राम्यते जनैः ।

1 Cf. Matsya P. 154, 511—512.
Padma P. 26, Vṛkṣaropanam.
Agni P. Chap. on Tarāgavṛkṣapraśaṁsā.

क्रीड़ारामं तु यः कुर्यादुद्दामफलसंयुतम् ।
स गच्छेच्छंकरपुरं वसेत्तत्र युगत्रयम्[a] ॥६[1]
एतत्सर्वं परिज्ञाय वृक्षारोपं समारभेत्[b] ।
धर्मार्थकाममोक्षाणां द्रुमेभ्यः साधनं यतः ॥७
यावद्दिनानि तुलसी रोपिता यद्गृहे वसेत् ।
तावद्वर्षसहस्राणि वैकुण्ठे स महीयते ॥८[2]
यस्तु संरोपयेद्बिल्वं शङ्करं प्रीतिकारकम् ।
तत्कुलेपि[c] सदा लक्ष्मीः संतिष्ठेत्पुत्रपौत्रिकी ॥९
एवमेव हि योश्वत्थं रोपयेद्विधिना नरः ।
यत्र कुत्रापि वा स्थाने गच्छेत्स[d] भवनं हरेः ॥१०
तेनेष्टा बहवो यज्ञास्तेन दत्ता वसुन्धरा ।
स सदा ब्रह्मचारी स्याद्येन धात्री प्ररोपिता ॥११
वटवृक्षद्वयं मर्त्यो रोपयेद्यो यथाविधि ।
शिवलोके बसेत्सोपि सेबितस्त्वप्सरोगणैः[e] ॥१२
निम्बत्रयं समारोप्य नरो धर्मविचक्षणः ।
सूर्य्यलोकं समासाद्य वसेदब्दायुतत्रयम् ॥१३
चतुर्णां प्लक्षवृक्षाणां रोपणान्नात्र संशयः ।
राजसूयस्य यज्ञस्य फलं प्राप्नोति मानवः ॥१४
पञ्चाम्रान्रोपयेद्यस्तु मार्गेषूपवनेषु च ।
भूतान्भविष्यान्पुरुषांस्तारयेत्स चतुर्द्दश ॥१५

(a) गणनाथ—युगे युगे ।
(b) ,, वृक्षारामं समाचरेत् ।
(c) ,, तत्कुले हि
(d) ,, कुत्रापि चापन्नः स गच्छेद्भवनं
(e) ,, वटद्वयं हि यो मर्त्यो रोपयेच्च यथाविधि ।
शिवलोके वसन् सोऽपि सेवित etc. ॥

1 Cf. Matsya P. 59, 17—20.
Agni P. 70, 1—9.
Saṁyutta-Nikāya I, and Kriakāṇḍavāridhi.

2 Cf. Varāha P. Chap. on Gokārṇamāhātma.
Kriākāṇḍavāridhi, pp. 663—664.
Bṛhatsaṁhitā, Chap. 54.
Indian Arts, i, pp. 85—91.

शरीषशाखिनां षराणां यः कुर्य्यात्प्रतिरोपणम्[a] ।
गारुड़ं लोकमासाद्य[b] मोदते देववत्सदा ॥१६
पलासशाखिनः सप्त रोपयेदकमेव वा ।
ब्रह्मलोकमवाप्नोति पूज्यते चामरोत्तमः[c] ॥१७
उदुम्बरद्रुमानष्टौ रोपयेत्स्वयमेव यः ।
प्रेरयेद्रोपणायापि चन्द्रलोके स मोदते ॥१८
पार्वती तोषिता तेन स भवेच्च निरामयः ।
पूजिता देवताः सर्वाः मधूको येन रोपितः[d] ॥१९
क्षीरिकाकदलीद्राक्षापियालपनसान्वितान् ।
तरून्संरोप्य नो दुःखी जायते सप्तजन्मसु ॥२०
अज्ञानाज्ज्ञानतो वापि जम्बूर्येन प्ररोपिता ।
गृहेऽपि स वसन्नित्यमतिधर्मेन[e] युज्यते ॥२१
अन्यानपि तरूण्रोप्य फलपुष्पोपयोगिनः ।
रत्नधेनुसहस्रस्य फळं प्राप्नोति मानवः ॥२२

अश्वत्थमेकं पिचुमन्दमेकं
न्यग्रोधमेकं दश चिञ्चिणीकाः[f] ।
कपित्थविल्वामलकत्रयं च
पञ्चाम्रवापी नरकं न पश्येत् ॥२३

अथ निवासासन्नतरुशुभाशुभलक्षणानि ।[1]

गृहस्य पूर्वदिग्भागे न्यग्रोधः सर्वकामिकः ।
उदुम्बरस्तथा याम्ये वारुण्यां पिप्पलः शुभः ।
प्लक्षश्चोत्तरतो धन्यो विपरीतांस्तु[g] वर्जयेत् ॥२४

(a) गणनाथ—कुर्य्यात् पथि रोपणं ।
(b) ,, गारुड़ं लोकमास्थाय etc.
(c) ,, पूज्यते सोऽमरैः सदा ॥
(d) ,, येन निर्म्मितः ।
(e) ,, वसन्नित्यं यतिधर्मेण युज्यते ॥
(f) ,, चिञ्चिणीकं ।
(g) ,, विपरीतं तु etc.

1 Cf. Gṛhyasūtra of Gobhila, IV. 7. 22-26.

वर्जयेत्पूर्वतोऽश्वत्थं प्लक्षं दक्षिणतो गृहात् ।
पश्चिमे चैव न्यग्रोधं तथोदुम्बरमुत्तरे[a] ॥२५
देवदानवगन्धर्वाः किंनरोरगराक्षसाः ।
पशुपक्षिमनुष्याश्च संश्रयन्ति सदा तरुम् ॥२६
सर्वेषां[b] वृक्षजातीनां छाया वर्ज्या गृहे सदा ।
अपि सौवर्णिकं वृक्षं गृहद्वारे[c] न रोपयेत् ॥२७
वदरी कदली चैव दाड़िमी वीजपूरकम् ।
प्ररोहन्ति गृहे यस्य[d] तद्गृहं न प्ररोहति ॥२८
पलाशाः काञ्चनाराश्च तथा श्लेष्मातकार्जुनाः ।
करञ्जाश्चेत्यमी वृक्षा न रोप्याः सुखिना गृहे[e] ॥२९
आसन्नाः कण्टकिनो रिपुभयदाः क्षीरिणोऽर्थनाशाय ।
फलिनः प्रजाक्षयकरा दारुण्यपि वर्जयेत्तेषाम्[f] ॥३०
नीलीं हरिद्रां च नरः सदोप्त्वा
पुत्रैर्धनैश्च क्षयमभ्युपेयात्[g]
एतास्तु सर्वाः स्वयमेव जाता—
श्छिन्द्यादृषीणां वचनाद्विधिज्ञः ॥३१

(a) गणनाथ—न्यग्रोधः पश्चिमे वर्ज्यस्तथौदुम्बरमुत्तरे ॥
(b) ,, सर्व्वासां etc.
(c) ,, गृहद्वारि etc.
(d) ,, यस्य गेहे प्ररोहन्ति etc.
(e) ,, करञ्जः पञ्चमो वृक्षा ना रोप्याः सुखिनो गृहे ॥
(f) ,, वर्ज्जयेदेषां ॥
(g) ,, पुत्रै र्धनैः संक्षयमभ्युपेयात् ।

Matsya P. Chap. 255, 20-24.
Agni P. Chaps. 246 and 248.
Padma P. Uttarākhaṇḍa and Sṛṣṭikhaṇḍa (Chap. 26).
Brahmavaivarta P. Śrīkṛṣṇa-janmakhaṇḍa (Chap. 102).
Bṛhatsaṁhitā, Chap 52. Vāstuvidyā, 83-84.
Sayings of Garga quoted by Bhaṭṭotpala in his Commentory on the Bṛhatsaṃhitā, Chap. 52.
Śukranīti, IV. iv, 95-104 ; 113-114 ; 123-124.

न कुर्युर्याम्यनैर्ऋत्याग्नेयेष्वपि हि वाटिकाम् ।
अन्यथा कलहोद्वेगौ कष्टं वा लभते भृशम्[a] ॥३२

तस्माद्राज्ञा हि शुभदं पुत्रसंनिधिवर्धनम्[b] ।
पश्चिमोत्तरपूर्वेषु भवेदुपवनं कृतम् ॥३३

अथ भूमिनिरूपणम् ।[1]

जाङ्गलानूपसामान्यस्वभावापि च मेदिनी ।
भेदैः सा भिद्यते षड्भिर्वर्णतो रसतस्तथा ॥३४[2]
असितविपाण्डुश्यामललोहितसितपीतरोचिषः क्रमशः ।
मधुराम्ललवणतिक्तककटुककषाया भुवो रसतः ॥३५
विषपाषाणवल्मीकबिलदुष्टा तथोषरा ।
दूरोदका शर्करिला तरुभ्यो न हिता मही ॥ ३६
इन्द्रनीलशुकपत्त्र[c]कोमला
शङ्खकुन्दकुमुदेन्दुसंनिभा ।
तप्तकाञ्चनविकासिचम्पक-
स्पर्धिनी वसुमती प्रशस्यते ॥ ३७
समा समासन्नजला हरित्तरूतृणाङ्कुरा ।[d]
तस्यां सर्वे यथास्थानं प्ररोहन्ति महीरुहाः ॥ ३८
न जाङ्गला न चानूपा भूमिः साधारणा[e] शुभा ।
तस्यां सर्वेपि तरवः प्ररोहन्ति न संशयः ॥ ३९

(a) गणनाथ—लभते क्वते ॥
(b) ,, तस्माद्राज्ञा हि शुभदं पुत्रपौत्रादिवर्द्धनं ।
(c) ,, शुकपुच्छ कोमला
(d) ,, श्यामा समासन्नजला हरिता तरुणाङ्कुरा ।
(e) ,, साधारणी शुभा ।

1 Cf. Vanaspati, Section VI, pp. 66-70.
2 Cf. Charaka, Kalpasthāna I, Madanaphalakalpa, 6, 7, 9. For Eng. trans. see Fasc. Lxi, Lesson 1, pp. 1917-1918.
Suśruta, chap. 35, 34-42; Eng. trans. Vol. II. pp. 325-326.
Arthaśāstra, XXIV, 116-117, where details as to the amount of rainfall in these region are given. Eng. Ed. (1915), pp. 143-145.

पनसलकुचतालीवंशजम्बीरजम्बू
तिलकवट[a]कदम्बाम्रातकखर्जूरपूगाः ।
कदलीतिनिशमृद्वीकेतकीनालिकेर
प्रभृतय इति चान्ये प्रायशोनूपजाः स्युः[1] ॥ ४० [b]
वीजपूरकपुंनागचम्पकाम्रातिमुक्तकाः ।
प्रियंगुदाड़िमाद्याश्च साधारणसमुद्भवाः ॥ ४१
निधिदेवमहीपानां प्रभावाच्चातियत्नतः[c] ।
असात्म्यभूमिसंपन्ना[d] अपि सिध्यन्ति पादपाः ॥ ४२

अथ पादपविवक्षा ।[2]

वनस्पतिद्रुमलतागुल्माः पादपजातयः
वीजात्कान्डात्तथा कन्दात्तज्जन्म त्रिविधं विदुः[3] ॥ ४३
ते वनस्पतयः प्रोक्ता विना पुष्पैः फलन्ति ये ।
द्रुमाश्च ते[e] निगदिताः सहपुष्पैः फलन्ति ये ॥ ४४
प्रसरन्ति प्रतानैर्यास्ता लताः परिकीर्त्तिताः ।
वहुस्तम्वा विटपिनो ये ते गुल्माः प्रकीर्त्तिताः ॥ ४५

(a) गणनाथ—तिलकघटकदम्बाम्रात etc.

(b) The following additional sloka is found in Gananath Sen's edition :

शोभाञ्जन-श्रीफल-सप्तपर्णी
शेफालिकाशोक-शमी-करीराः ।
कर्कन्धु-रात्रिचर-निम्ब-शोका
वृद्धिं लभन्ते भुवि जाङ्गलायाम् ॥

(c) गणनाथ—प्रभावाच्चापि यत्नतः ।

(d) ,, असात्म्य-भूमि-सम्पन्ना etc.

(e) ,, द्रुमास्तानेर etc.

1 Cf. Bṛhatsaṁhitā, chap. 54, 10-11, (Vol. II. p. 745), where 16 predominant trees of this region are mentioned ; also Amarakoṣa, Pātālavarga, 50-56. (See Colebrook's edition (1807) Bk. I. Chap. 2, Sec 3, Aquatic plants, 36-42).

2 See Vanaspati, Sec. V. pp. 62-65 ; Sec. VII. pp. 79-127.

3 Cf. Ṛgveda X. 97, 15.
Manu Saṁhitā, I. 46-48.
Charaka, Sūtrasthāna, I. 36-37.
Suśruta, Sūtrasthāna, I. 23.
Dalvana, quoted in Dr. Seal's Positive Science, p. 170.
Amarakośa—*ibid*, pp. 171-173.

जम्बूचम्पकपुंनागनागकेशर चिञ्चिणी ।
कपित्थवदरीविल्वकुम्भकारिप्रियङ्गवः ॥ ४६
पनसाम्रमधूकाद्याः करमर्दाश्च वीजजाः ।
ताम्बूली सिन्धुवारश्च तगराद्याश्च कान्डजाः[1] ॥ ४७
पाटलादाड़िमीप्लक्षकरवीरवटादयः ।
मल्लिकोदुम्वरः कुन्दो वीजकाण्डोद्भवा मताः ॥ ४८
कुङ्कुमार्द्र रसोनालुकन्दाः कन्दसमुद्भवाः ।
एलापद्मोत्पलादीनि वीजकन्दोद्भवानि तु[a] ॥ ४९

अथ वीजोप्तिविधिः ।

सम्यक्कृष्टे समे क्षेत्रे माषानुप्त्वा तिलांस्तथा[2] ।
सुनिष्पन्नानपनयेत्तत्र[b] वीजोप्तिरिष्यते ॥ ५०
अथतु पक्वात्फलतोवशोषिता-[c]
न्विकृष्य वीजं पयसा निषिच्य ।
विशोषितं पञ्चदिनानि सर्पिषा
विड़ङ्गमिश्रेण च धूपयेत्ततः ॥ ५१
क्षीरनिषिक्तं वीजं वृहतीतिलभस्मसर्पिषा लिप्तम्[d] ।
गोमयमृदितमथोप्तं सद्यो जायेत धूपितं वसया ॥ ५२
पयसि निषिक्तं वीजं गोमयपरिमर्द्दितं विशोष्य ततः ।
माक्षिकविड़ङ्गचूर्णैर्वहुशो मृदितं प्रजायेत ॥ ५३[3]

(a) गणनाथ—वीजकन्दोद्भवानि च ॥
(b) ,, सुनिष्पन्नान् समुद्धृत्य तत्र etc. ।
(c) ,, अथतुपक्वं फलतो विशुष्कत:
(d) ,, क्षीरे निषिक्त-वीजं वृहती तिलमेव सर्पिषायुक्तं ।

1 Cf. Ṛgveda, Atharvaveda, where scattered references are met with all throughout the texts ; Digha-Nikāya I. p. 3.
Buddhaghosa's Sumaṅgala, Vilāsinī, D.I. 1, 11. (P. T. S. I. p. 81).
Kauṭilya's Arthaśāstra, chap. 24. p. 141.
Manu Saṁhitā I, 46-48 ; Bṛhatsaṃhitā, chap. 54.
Maskarin Gosālā—Barua, chap. xxi., p. 307 ; Hemchandra, quoted in Sabdakalpadruma, iv, p. 475.

2 Cf. Atharva Veda, II. 8. 3.

3 Cf. Kauṭilya's Arthaśāstra, chap. 24. 117, p. 145.
Bṛhatsaṃhitā, chap. 54. 19, 26.

जम्बूपनसचूतानां सरलं लकुचस्य च ।
क्षीरसिक्तं वपेद्बीजं घृतगोविड्विडङ्गवत् ॥ ५४

शुचिस्नातो विभ्रद्वसनममलं पूजितसुरो
गुरुं नत्वा दत्त्वा वसु वसुमतीं वा गुणवते ।
स्वयं बीजान्यादौ वपति कतिचिद्वास्तुपुरुषं
मनस्यन्तः कृत्वा तदनु परितोन्यः परिजनः ॥ ५५

बीजधानीं तृणास्तीर्णां कृत्वा सिञ्चेत्पयोम्बुना ।
जाताङ्कुरां च सलिलैर्निस्तृणां शोषमानयेत् ॥ ५६

अथ रोपणविधानम् ।

अयथाविहितानां यन्मनोज्ञतासंपदौ नस्तः ।
कथयाम्यतस्तरूणां रोपबिधानं[a] यथोद्दिष्टम्[b] ॥ ५७

ध्रु बमृदुमूलबिशाखागुरुभं श्रवणस्तथाश्विणी हस्तः ।
उक्तानि दिव्यदृग्भिः पादपसंरोपणे भानि ॥ ५८[1]

हस्त प्रमाणान्पयसा सुसिक्तान्
संक्रामयेन्मूलबहः[c] सम्मृत्कान् ।
सर्पिर्मधूशीर[d] बिड्ङ्गलिप्ता-
न्बिले निदध्याच्च करीषयुक्ते[e] ॥ ५९

अबालुकाश्लक्ष्णमृदा पूरिते गर्त्तशोधनम् ।
कोदण्डार्धमिते खाते जलसिक्ते बपेत्तरुम् ।
कदलीक्षीरिणौ रोप्यौ[f] मूले दत्त्वा तु गोमयम् ॥६०

(a) गणनाथ—रोपणविधिना etc.

(b) The following additional sloka is found in Gananath Sen's edition :

रोहिणी सहितमुत्तरात्रयं कीर्त्तयन्ति मुनयो ध्रुवाह्वयम ।
त्वाष्ट्र-मित्र-शशि-पूष-दैवता—न्यामनन्ति मुनयो मृदून्यथ ॥

(c) गणनाथ—संक्रामयेन्मूलवत: etc.

(d) ,, ससपिर्षोशीर etc.

(e) ,, करीषपूर्णे ॥

(f) ,, कदली चीरिनो रोप्या etc.

1 Cf. Bṛhatsaṃhitā, chap. 54, 31.
Agni P. chap. 281, 3, 4 & 6.

रम्भायाः सुपरिणतैः फलैर्बिलिप्तां
संशुष्कां भुवि निहितां पलालरज्जुम् ।
शुद्धायामुपरि तृणेन गाढ़गुप्ता-[a]
मासिञ्चेद्वहुजलैर्बहून्यहानि ॥ ६१
सा रज्जूस्तदनु तमालनीलभासो[b]
बिभ्राणानरुणरुचोङ्कुरान्प्रसूते ।
भूयस्तानुपचितपत्रकाण्डमूला-
नारोप्य प्रथितबिधानतो निषिञ्चेत् ॥ ६२
आषाढ़े श्राबणे मासि बीजाबपन रोपणे ।
ग्रीष्मादन्यत्र बल्लीनां केचिदिच्छन्ति रोपणम् ॥[1] ६३
मण्डपनन्द्याबर्त्त[c]स्वस्तिकचतुरस्रसर्बतोभद्रैः ।
बीथीनिकुञ्जपुञ्जकबिन्यासैः पादपा रोप्याः ॥ ६४
दशबिंशतिषोड़शभिस्तु करै-
रधरोत्तरमध्यकृतान्तरकान् ।
द्विचतुस्त्रिभिरन्तरितान् क्रमश-[d]
स्तृणपादपगुल्मभृतश्च बपेत् ॥[2] ६५
सान्द्ररोपणमबृद्धिकारणं
बातभीतिरतिदूररोपणात् ।
भिन्नबर्गरचनाल्पपीड़ना
नैब युक्तिरियमैब शस्यते[e] ॥ ६६

(a) गणनाथ—शुद्धायामुपरितया च गाढ़गुप्तां
(b) ,, सा रज्जुस्तरुण-तमाल-नील-भासा
(c) ,, मण्डप-नन्द्यावर्त्तैः स्वस्तिक etc.
(d) ,, द्विचतुस्त्रिभिरन्तरितान्रुचिरां—
(e) ,, भिन्नवर्ण-रचनाल्प-पीड़िता—
नान्तु युक्ति etc.

1 Cf. Bṛhatsaṁhitā, 54. 7 ; also Kāśyapa quoted by Bhaṭṭotpala in his Commentory on this sloka.
2 Cf. Agni P. chap. 281, 8 & 9.
Śukranīti, IV, iii, 91—93.
Bṛhatsaṁhitā, 54, 12,

कुसुमं फलमप्युपभोगसहं
फलिनो हि न यस्य दलन्ति शिखाः ।
कुसुमेन बिनैव फलन्ति च ये
न भवन्ति शुभास्त इहापनसाः[a] ॥ ६७

मातुलुङ्गरजनी सकण्टकः
किंशुकश्च गिरिकर्णिका सिता ।
तिन्तिड़ीकबिफलात्तनीलिकाः
कोबिदार इति भीतिदो गणः ॥ ६८

फलिन्यशोकपुंनागशिरीषनिम्बचम्पकाः ।
मङ्गल्याः प्रथमं रोप्या भल्लातश्च गदापहः[b] ॥ ६९

पूर्बस्यां करमर्दबंशबिटपाः पारावता दक्षिणे
कौवेर्यां बदरी कपित्थतरबो धात्री च पश्चाच्छिबा ।
अन्ये चोत्तममध्यमाधमशिफा रोप्याः स्बवर्गैः समं
कृत्वा चान्तरकं यथायथममी पत्रैरुपर्यस्पृशः ॥[1] ७०

अथ निषेचनविधिः ।

सर्बस्यापि नबोप्तस्य सायंप्रातर्निषेचनम् ।
शीतातपसमीरेभ्यो रक्षेच्च सुबिधानतः ॥ ७१

हेमन्ते शिशिरे देयं जलं चैकान्तरे दिने ।
बसन्ते प्रत्यहं ग्रीष्मे सायंप्रातर्निषेचनम् ॥[2] ७२

बर्षासु च शरत्काले यदा वृष्टिर्न दृश्यते ।
तदा देयं जलं तज्ज्ञैरालबाले महीरुहाम्[c] ॥ ७३

बारिणा याबता यस्य मूले सौहित्यमिष्यते ।
ताबत्तस्य तरोर्देयं किं घटार्थबिबक्षया ॥ ७४

(a) गणनाथ—न भवन्ति शुभा इह ते पनसाः ॥
(b) ,, भल्लातस्तु गदावहः ॥
(c) ,, तदा देयं जलं तब आलवाले महीरुहे ॥

1 Cf. Bṛhatsaṁhitā, 54, 13, which states that
मिश्रैर्मूलैश्च न फलं सम्यग्यच्छन्ति पीडिताः ॥

2 Cf. Agni P. chap. 281, 7.
Śukranīti, IV. iv, 105—106.
Bṛhatsaṁhitā, 54, 9.

आलबाले स्थितं तोयं शोषं न भजते यदा ।
अजीर्णं तद्विजानीयान्न देयं तादृशे[a] जलम् ॥ ७५
समीपजातं यत्नेन तृणगुल्मलतादिकम् ।
स्फोटनीयं बिधिज्ञेन द्रुमानां बृद्धिमिच्छति[b] ॥७६

अथ द्रुमरक्षा ।[1]

नीहाराच्चण्डबाताच्च धूमाद्वैश्वानरादपि ।
जालकारात्प्रयत्नेन रक्षणीयाः क्षमारुहाः[c] ॥ ७७
पङ्क्तिमध्ये तु सुफला बाह्ये तत्परोतपरे ।
बृक्षाः कार्या युताबृत्या सा चापि परिखायुता[d] ॥ ७८
बिद्युदाहतबृक्षस्य भूमिमादाय सर्बतः ।
रक्षार्थं बिकिरेदेषां तया न हिमबाधनम् ।
दीप्तोप्यग्निः शमं याति बज्रदग्धद्रुभस्मना ॥ ७९
सितशाल्योदनं दध्ना सैन्धवेन युतं बने ।
क्षेपणीयं च परितो[e] गराणां बृष्टिबारणम् ॥ ८०
शलभाखुपतङ्गानां पिपील्यादेर्भये सति ।
अष्टोत्तरशतं जप्त्वा मन्त्रं पत्रे ततो लिखेत्[f] ॥ ८१

मन्त्रः । ॐ स्वस्ति किष्किन्धास्थितप्रकटपराक्रमान्तर्हितार्कमण्डलोपजीवितस्य श्रीहनूमानाज्ञापयति मूषकपतङ्गपिपीलिकाशलभकरभान्वककीटगन्धिकानिवहैर्ण-स्थातव्यम् । आज्ञामतिक्रममाणस्य शरीरनिग्रहः समावर्त्तयति । तस्य वानरसिंहस्य क्रममानस्य सागरम् । कक्षान्तरगतो वायुर्जीमूत इव नर्दति ॥ ह्रूं फट् नमः ॥

पत्रे मनुंसमालिख्य जप्त्वा तं निखनेद्भुबि ।
क्षेत्रे कीटपतङ्गाखुपिपील्यादिर्बिनश्यति ॥ ८२

(a) गणनाथ—तादृशं जलं ॥
(b) ,, बृद्धिमिच्छता ॥
(c) ,, मह्वीरुहाः ॥
(d) ,, परिखावृता ।
(e) ,, परितः etc.
(f) ,, पत्रे तरोर्लिखेत् ॥

1 To be read with Section on तरुचिकित्सा, p. 58.

अथोपवनप्रक्रिया ।[1]

घनप्रवालस्थगितातपानि
विकीर्णपुष्पाणि समीरणेन ।
गृहाणि कुर्यादतिमुक्तकानां
लताभिरालोल मधुव्रताभिः ॥ ८३[2]

स्थानेष्वपरेषु[a] तथा पादपयुगलेषु मिथुनसंवाह्याः ।
शाखावलम्बिनीभिर्दोलाः कार्या लताभिश्च ॥ ८४

तरुविटपलतानिकुञ्जरम्या
विरचितकंदरसानुगण्डशैला ।
विविधमणिगुहा विचित्रधातुः
क्वचिदपि पर्वतिका विहारहेतुः[b] ॥ ८५

केकानिनादसुभगाः सदासंत्रासिताहयः ।
ताण्डवेन तदुद्देशान्मण्डयन्ति शिखण्डिनः ॥ ८६

मन्वः । विलम्बिनो यत्र तटद्रुमा वपु-
र्विलोकयन्ति प्रसवेक्षणैरिव ।
समं दिशन्तः कलहंसभूषणा
क्वचिद्भवेत्पुष्करिणी मनोरमा ॥ ८७[3]

(a) गणनाथ—स्थानेष्वग्र्येषु etc.

(b) The following additional sloka is given in Gananath's edition :

जल-प्रपात-निर्झरैः सुशोभितं मनोरमं ।
स्थलञ्च सौरभोल्लसत्-समस्त-वारियन्त्रकैः ॥८८

1 Cf. Ṛgveda, III. 8. 11, about "The consecration of a garden". See also Sānkhāyana's Gṛhya Sūtra, V. 3. 2, et seqq.

2 Cf. Vātsyāyana's Kāmasūtra where details of the construction of a Vṛkṣavāṭikā are given. See Introduction p. 17-18 ; and also Chakladar. pp. 151-156 where passages are also quoted from Raghuvaṃsa, XIX, 9 ; Kāmasūtra, 17; Viṣṇu Smṛti, V. 117 ; Bhāsa's Svapna-Vāsavadattā, Act V.
Cf. Also Matsya P. chap. 256, 3-10.
Śukranīti, IV. iv, 104.
Kāmandakinīti, XIV, 27-42.

3 Bṛhatsaṁhitā, 54 :—प्रान्तच्छायाविनिर्मुक्ता न मनोज्ञा जलाशयाः ।
यस्मादतो जलप्रान्तेष्वारामान् विनिवेशयेत् ॥ १

निर्यादः सलिलां सुखावतरणां तीरेषु पुष्पद्रुमां
कूजद्दत्तविहङ्गमां सतरणीमत्यायतां दीर्घिकाम्[a] ।
कुर्यात्तत्र समुल्लसत्कमलिणीपत्राङ्कुरश्यामलां
श्यामालोचनमल्लिकां विदधतीं नीलोत्पलानि क्वचित् ॥ ८८

उपवनमिव वारिमध्यमग्नं
बिमलतया प्रतिविम्बितं दधाना ।
शशिकरनिकरेण पूरिते व[b]
क्वचिदुपनेयपयाः सुखाय वापी[c] ॥ ८९

मध्ये तस्मिन्शिशिरशिखरिस्पर्धि वेश्म प्रवातं
गूढोपान्तं सुरभिकुसुमैः शाखिभिर्नम्रशाखैः ।
स्थाने स्थाने स्फटिकधवलं मण्डपं मण्डनार्हं[d]
कुर्यात्कस्मिन्नपि च कदलीमन्दिरं मन्दवायु ॥ ९०

क्वचिदपि कूपं कुर्यादुपवनदेशे सुमृष्टसलिलभरम् ।
संसिक्तसकलविटपं बद्धं पाषाणसंचयैः[e] परितः ॥ ९१

अञ्जनमुस्तोशीरैः सनागकोशातकामलकचूर्णैः ।
कतकफलसमायुक्तैः कूपे योगः प्रदातव्यः ॥ ९२

कलुषं कटुकं लवणं विरसं
सलिलं यदि वाशुभगन्धि भवेत् ।
तदनेन भवत्यमलं सुरसं
ससुगन्धि गुणैरपरैश्च युतम् ॥ ९३

अथ कूपार्थ भूमिपरीक्षा ।[1]

पातालादूर्ध्वगमाः शिराः प्रसर्पन्ति सर्वतो दिक्षु ।
नीरस्य भूमिमध्ये ज्ञात्वा ताः कल्पयेत्कूपम् ॥ ९४

(a) गणनाथ—कूजद्दृविहङ्गमां सुतरणीमत्यायतां दीर्घिकां ।
(b) ,, शशिकरनिकरेण भूषितेव
(c) ,, क्वचिदमलपयाः etc.
(d) ,, स्थाने स्थाने स्फटिक-धवलान् मण्डपानर्हमण्डान्
(e) ,, बद्धं पाषाण-शकलैः etc.

1 Cf. Bṛhatsaṁhitā, chap. 53, translated in the Introduction and quoted in the Appendix.
Cf. also Fausboll no 2, Vaṇṇupatha Jātaka.

यदि वेतसोम्बुरहिते देशे हस्तैस्त्रिभिस्ततः पश्चात् ।
सार्धे पुरुषे तोयं वहति शिरा पश्चिमा तत्र ॥ ९५
चिह्नमपि चार्धपुरुषे मण्डूकः पाण्डुरो हि मृत्पीता ।
पुटभेदकश्च तस्मिन् पाषाणो भवति बहुतोयः ॥ ९६
जम्बूवृक्षस्य प्राग्वल्मीको यदि भवेत्समीपस्थः ।
तस्माद्दक्षिणपार्श्वे सलिलं पुरुषद्वये साधु ॥ ९७
अर्धपुरुषे च मत्स्यः पारावतसंनिभश्च पाषाणः ।
मृद्भवति तत्र नीला दीर्घं कालं च[a] बहुतोयम् ॥ ९८
वल्मीकोपमितायां निर्गुण्ड्यां[b] दक्षिणे करत्रयोन्माने ।
पुरुषद्वयेन पादे भवति जलं स्वादु चाशोष्यम् ॥ ९९
रोहितमत्स्योऽर्धनरे मृत्कपिला पाण्डुरा ततः परतः ।
सिकताश्च शर्कराश्च क्रमेण परतो भवत्यम्भः ॥ १००
पूर्वेण यदि बदर्या वल्मीको दृश्यते जलं पश्चात् ।
पुरुषैस्त्रिभिरादेश्यं श्वेता गृहगोधिकार्धनरे ॥ १०१
सफला वा बदरी चेद्दिश्यपरस्यां जलं ततो भवति ।
पुरुषत्रये सपादे भवति परं दुन्दुभेश्चिह्नम्[c] ॥ १०२
काकोदुम्बरिकायां वल्मीको दृश्यते शिरा तस्मिन् ।
पुरुषत्रये सपादे पश्चिमदिक्स्था च सा वहति ॥ १०३
आपाण्डुरा च मृत्स्ना[d] गोरसवर्णश्च भवति पाषाणः ।
पुरुषार्धे कुमुदनिभो दृष्टिपथं मूषको याति ॥ १०४
आसन्नो वल्मीको दक्षिणपार्श्वे विभीतकस्य ।
अध्यर्धे भवति शिरा[e] पुरुषे ज्ञेया दिशि प्राच्याम् ॥ १०५
तस्यैव पश्चिमायां बल्मीको यदि भवेद्धस्ते ।
तत्रोद्भवति[f] शिरा चतुर्भिरर्धाधिकैः पुरुषैः ॥ १०६

(a) गणनाथ—नीला सुदीर्घकालश्च बहुतोयम् ॥
(b) ,, वल्मीकोपचितायां निर्गुण्ड्या etc.
(c) ,, परं डुण्डुहेश्चिह्नं ॥
(d) ,, आपाण्डुरीव मृत्का etc.
(e) ,, अध्यर्द्ध तस्य शिरा etc.
(f) ,, तत्रोदग्वहति शिरा etc.

श्वेतो विश्वंभरकः प्रथमे पुरुषे तु कुङ्कुमाभोऽश्मा
अपरस्यां दिशि च शिरा नश्यति वर्षत्रयेऽतीते ॥ १०७
सकुशः सित[a] एतस्यां वल्मीको यत्र कोविदारस्य ।
मध्ये तयोर्नरैरर्धपञ्चमैस्तोयमक्षोभ्यम् ॥ १०८
प्रथमपुरुषे भुजङ्गः कमलोदरसंनिभा मही रक्ता ।
कुरुविन्दकपाषाणाश्चिह्नान्येतानि वाच्यानि ॥ १०९
सर्वेषां वृक्षाणामधःस्थितं दर्दुरं यदा पश्येत् ।
तस्माद्धस्ते तोयं चतुर्भिरर्धाधिकैः पुरुषैः ॥ ११०
उत्तरतश्च मधूकादहिनिलयः पश्चिमोत्तरे तोयम् ।
परिहृत्य पञ्चहस्तानर्धाष्टमपौरुषं वाच्यम् ॥ १११
अहिराजः पुरुषेऽस्मिन्धूम्रा धात्री कुलत्थवर्णोऽश्मा
माहेन्द्री वहति शिरा भवति सफेनं सदा तोयम् ॥ ११२
सर्पावासः पश्चाद्यदा कदम्बस्य दक्षिणेन जलम्[b] ।
पुरतो हस्तत्रितयात्षड्भिः पुरुषैस्तुरीयोनैः[c] ॥ ११३
वल्मीकसंवृतो यदि तालो वा भवति नालिकेरो वा ।
पश्चात्षड्भिर्हस्तैर्नरैश्चतुर्भिः शिरा यस्य[d] ॥ ११४
अश्मातकस्य वामे वदरी वा दृश्यतेऽहिनिलयो वा ।
षड्भिरुग्वास्य करैः[e] सार्धे पुरुषत्रये तोयम् ॥ ११५
कूर्मः प्रथमे पुरुषे पाषाणो धूसरः ससिकता मृद् ।
आदौ शिरा च याम्यां पूर्वोत्तरतो द्वितीया च ॥ ११६
जलरहिते यदि देशे चिह्नान्यनूपजानि दृश्यन्ते ।
वीरणदूर्वा हरिता[f] यत्र हि तस्मिञ्जलं पुरुषे ॥ ११७

(a) गणनाथ—ससित: कुश etc.
(b) ,, यदा कदम्बस्य दक्षिणेनाम्बु ।
(c) ,, षड्भि पुरुषैस्तु पायो वै ॥
(d) ,, शिरा याम्यां ॥
(e) ,, षड्भिरुदकाश्मा करैः etc.
(f) ,, वीरणदूर्वारहिते यत्र etc.

तिलकाम्रातकवरुणकभल्लातकविल्व[a]तिन्दुकाङ्कोलाः ।
पिन्डीरशिरीषाञ्जनपरुषक[b]वञ्जुलातिवलाः ॥ ११८
एते यदि सुस्निग्धै र्वल्मीकैः परिवृतास्ततस्तोयम् ।
हस्तैस्त्रिभिरुत्तरतश्चतुर्भिरर्धेन च नरस्य ॥ ११९
अतृणे सतृणा यस्मिन् सतृणे तृण वर्ज्जिताः मही यत्र ।
तस्मिन् शिरा प्रदिष्टा वक्तव्यं वा धनं तत्र[c] ॥ १२०
कण्टक्यकण्टकानां व्यत्यासेम्भस्त्रिभिः[d] करैः पश्चात् ।
खात्वा पुरुषत्रितयं त्रिभागयुक्तं धनं वा स्यात् ॥ १२१
वृक्षस्यैका शाखा यदि विनता भवति पाण्डुरा वा स्यात् ।
विज्ञातव्यं शाखाग्रतले नीरं त्रिपुरुषं तु[e] ॥ १२२
फलकुसुमबिकारो यस्य तस्य पूर्वे शिरा त्रिभिर्हस्तैः[f] ।
भबति पुरुषैश्चतुर्भिः पाषाणाधः क्षितिः पीता ॥ १२३
यदि कण्टकहीना स्यान्निदिग्धिका शुभ्रपुष्पसंयुक्ता ।
तस्यास्तलेम्बु बाच्यं त्रिभिर्नरैरर्धपुरुषे बा ॥ १२४
खर्जुरी द्विशिरस्का यत्र भबेज्जलबिबर्जिते देशे ।
तस्याः पश्चिमभागे निर्द्देश्यं त्रिपुरुषैर्बारि ॥ १२५
यदि भबति कर्णिकारः सितकुसुमः स्यात्पलाशवृक्षो बा[g] ।
सव्येन तत्र हस्तद्वयेम्बु पुरुषत्रये भबति[h] ॥ १२६
ऊष्मा यस्यां धात्र्यां धूमो बा तत्र बारि नरयुगले ।
निर्द्देष्टव्या च शिरा महता बारिप्रबाहेण ॥ १२७
यस्मिन् क्षेत्रोद्देशे[i] जातं शस्यं बिनाशमुपयाति ।
स्निग्धमतिपाण्डुरं बा महाशिरा नरयुगे तत्र ॥ १२८

(a) गणनाथ—भल्लातक-तिल्व-तिन्दुक etc.
(b) ,, परुषकार्क etc.
(c) ,, वक्तव्यं जीवनं तत्र ॥
(d) ,, प्रत्यासन्नस्त्रिभिः करैः etc.
(e) ,, त्रिपुरुषं तत् ॥
(f) ,, फलकुसुमविकारो यत्र तस्मात् पूर्व्वे etc.
(g) ,, स्यात् पलाशवृक्षे च ।
(h) ,, सव्येन तत्र हस्तद्वयपुरुषत्रये वा भवति जलं ॥
(i) ,, यस्मिन् क्षेत्रे देशे जातं etc.

मरुदेशे भवति शिरा यथा तथातः परं प्रवक्ष्यामि[a] ।
ग्रीवा करभाणामिव भूतलसंस्था शिरा याति[b] ॥ १२९
पूर्वोत्तरेण पीलोर्यदि[c] वल्मीको जलं भवति पश्चात् ।
उत्तरगमना च शिरा विज्ञेया पञ्चभिः पुरुषैः ॥ १३०
चिह्नं दर्दुर आदौ मृत्कपिला तत्परं भवेद्धरिता ।
भवति च पुरुषे वाश्मा तस्य तले परि निर्द्देश्यम्[d] ॥ १३१
बदरीरोहितवृक्षौ संपृक्तौ चेद्विनापि वल्मीकात् ।
हस्तत्रयेम्बू पश्चात्षोड़शभिर्माजवैर्भवति[e] ॥ १३२
सुरसं जलमादौ दक्षिणे शिरा वहति चोत्तरेणान्या[f] ।
पिष्टनिभः पाषाणो मृच्छ्वेता वृश्चिकोर्धनरे ॥ १३३
सकरीरा चेद्बदरी त्रिभिः करैः पश्चिमेन तत्राम्भः ।
अष्टादशभिः पुरुषैरैशानी बहुजला च शिरा ॥ १३४
ककुभकरीरावेकत्र संयुतौ ककुभबिल्वौ वा ।
हस्तत्रयेम्बू पश्चान्नरैर्भवत्येकविंशत्या ॥ १३५
वल्मीकमूर्धनि यदा दूर्वा दर्भाश्च पाण्डुराः सन्ति ।
कूपो मध्ये देयो जलमत्र नरैकविंशत्या ॥ १३६
ग्रन्थिप्रचुरा यस्मिन्शमी भवेदुत्तरेण वल्मीकः ।
पश्चात्पञ्चकरान्ते शतार्धसंख्यैर्नरैः सलिलम् ॥ १३७
जम्बू त्रिवृता श्यामा शिशुमारी शारिबा शिबा दूर्वा[g] ।
वीरुधयो बाराही ज्योतिष्मती गरुड़वेगा च[h] ॥ १३८

(a) गणनाथ—मरुदेशे भवति शिरा यथा यथा तत्र वक्ष्यामि ।
(b) ,, यत्र ॥
(c) ,, पूर्व्वोत्तरेणं पीतं यदि etc.
(d) ,, चिह्नं दर्दुर आदौ मृत् कपिला तत्परं भवेत् पृथ्वी ।
भवति च पुरुषे चोष्मा तस्य तले वारि निर्द्देश्यं ॥
(e) ,, हस्तत्रयेम्बु पश्चान्नरैर्भवत्येकविंशत्या ॥
(f) ,, सुरसं जलमादौस्यात् दक्षिण-शिरा वहति चोत्तरेण सा ।
(g) ,, श्यामा शिशुगन्धा वा शिवा दूर्व्वा ।
(h) ,, गरुडदूर्व्वा वा ॥

सूकरिका माषलता व्याघ्रपदा चेति यद्यहेर्निलये ।
वल्मीकादुत्तरतः करैस्त्रिपुरुषागतं तोयम्[a] ॥ १३९
एतदनूपे वाच्यं जाङ्गलभूमौ च पञ्चभिः पुरुषैः ।
एतैरेव निमित्तैर्मरुभूमावष्टभिः कथयेत्[b] ॥ १४०
एकनिभा यत्र मही तृणतरुवल्मीकगुल्मपरिहीणा ।
तस्यां यत्र विकारो भवति धरित्र्यां जलं तत्र ॥ १४१
हस्ता मघानुराधापुष्यधनिष्ठोत्तराश्च रोहिण्यः ।
शतभिषगित्यारम्भे कूपानां शस्यते भगणः ॥ १४२
आग्नेये यदि कोणे ग्रामस्य पुरस्य वा भवति कूपः ।
नित्यं स करोति भयं दाहं च समानुषं प्रायः ॥ १४३
नैऋतकोणे बालक्षयं च वनिताक्षयं च वायव्ये ।
दिश्यैशान्यां भीतिः शेषास्तु शुभावहाः कूपाः ॥ १४४

या मेदिनी काशकुशैश्च युक्ता
नीला च मृद्यत्र सशर्करा च ।
तस्यां प्रणीतं सुरसं च तोयं
कृष्णाथवा यत्र च तिक्तमृत्स्ना ॥ १४५
सशर्कराभा तु मही कषायं
क्षारं धरित्री कपिला करोति ।
आपाण्डुरायां लवणं प्रदिष्टं
मिष्टं पयो नीलवसुन्धरायाम् ॥ १४६

अथ पोषणविधिः ।[1]

फलकुसुमसंपदुचिता रोपणतो भवति केवलान्न यतः ।
पोषणविधिमथ संमतमनोकहानामतो वक्ष्ये ॥ १४७

(a) गणनाथ—सूकरिका माषलता व्याघ्रपदा वेति यदि कुम्रनिलये ।
वल्मीकादुत्तरतस्त्रिभिः करैस्त्रिपुरुषगतं तोयं ॥

(b) ,, पुरुषैः ॥

(c) ,, केवला न यतः ।

1 The origin of manuring can be traced as early as to a verse in the Ṛgveda (II, 8, 3). But for a more elaborate prescription see Agni P. chap. 281; Bṛhatsaṁhitā, chap. 54; Parāśara's Kṛsi Saṁgraha (slokas 107—109), and Śukranīti, IV. iv, 94; 107—108; 109; 110—112.

खर्ज्जूरबिल्बलकुचाः सितसर्षपेण
पिराायाकतश्च तुषबारिबशेन चाम्राः ।
ऐराबता निचुलपत्रजलोद्गमेन
सव्रीहिमांससलिलेन च यान्ति बृद्धिम्[a] ॥ १४८
प्राचीनामलकतरोः प्रिया हि माषाः
क्षीराम्भो हितमिह बालतिन्दुकानाम् ।
प्रीयन्ते यबरजसा च नालिकेराः
सर्बेषां भबति रुचिर्हि निम्नभूमौ ॥ १४९
कुरङ्गकिटिसारङ्गशृगालाश्वादिमेदसा ।
क्वथितेन सदुग्धेन पञ्चपल्लववारिणा ।
कृतसेको भवेदाशु सहकारोतिसौरभः ॥ १५०
घृतकुणपबचावराहविष्ठा-
सलिलमतीब सुखाय दाड़िमानाम् ।
क्वथितमथ कुलत्थचूर्णकं बा
जलमपि बृद्धिकरं सदा शफर्य्याः[b] ॥ १५१
यस्त्रिफलाशफरीघृतलिप्तो
धूपित आद्यफलत्रयधूपैः[c] ।
आम्रफलैरिह दाड़िमशाखी
तालफलानि विडम्बयतीब ॥१५२
दधिमस्तुकाञ्जिकसुराबदरी-
तिलमैथिकाकुणपसीधुपयः ।
फलिनीकदम्बकरिकेसरका-[d]
न्कुरुते सुगन्धिबहुपुष्पयुतान् ॥१५३

(a) गणनाथ—एलावता निचुल-पत्र-जलोक्षिता हि
सव्रीहिणा तु सलिलेन च यान्ति वृद्धिम् ॥
(b) ,, निजमपि वृद्धिकरं सदा फलाढ्यं ॥
(c) ,, यस्त्रिफलाशफरीदललिप्तो
धूपित आज्य फलत्रय etc.
(d) ,, फलिनी-कदम्ब-करिकेशरिकान् etc.

प्रियङ्गुगुञ्जाफलनिम्बपिप्पली-
वचाहरिद्रातिल सर्षपैः समैः ।
घृताश्वकर्णाम्बु विलोड्य पायये-
त्सचम्पके नागतरौ सुवृद्धिदम्[a] ॥ १५४

सिक्ताम्भोभिः पललतुषयोः कुक्कुटानां पुरीषं
मूले दत्वा सकुसुमफला गोस्तनी वृद्धिमेति ।
स्कन्धन्यस्तैः पनसतरवोप्याशु पालालभारै-[b]
र्मूलादग्रं दधति च बचावारिसिक्ताः फलानि ॥ १५५

सर्पिर्गुडक्षीरमधूपचारं
दत्वा निषिक्तौ च कपित्थविल्वौ ।
पीयूषकल्पान्यतिमांसलानि
फलान्यनस्थीनि सदा दधाते ॥१५६

कोशातकी दलशिफाक्वथितामिषाम्भः-
संसेचनाच्च सुकणारजसा च युक्तः ।
लब्धोपचारमथ धूपजलाभिषिक्तः
शोभां विभर्त्तिनितरां कुसुमैर्मधूकः[c] ॥१५७

तिलयष्टिमधुक मधुभिर्मिश्रितजलसेकतर्पितावदरी ।
कुणपैरुपचितमूला फलति फलं शर्करामधुरम् ॥१५८

अजैडकासूकरविड् विडङ्ग-
किणवोपचारेण[d] च बीजपूरः ।
भूयोश्वमूत्राविल[e]वारिसिक्तः
फलानि धत्ते सुबहूनि शश्वत् ॥१५६

वृश्चिककण्टकविद्धाः सुरभीघृतधूपिता हि निखिललताः ।
मूषककोलवसाभिः संसिक्ताः स्युः फलैर्नम्राः ॥१६०

(a) गणनाथ—घृताश्वकर्णाम्बु विलोड्य पाययेत्
पङ्के च नागेशतरौ etc.

(b) ,, पातालभारै etc.

(c) ,, शोभां विभर्त्ति नितरां हि मधूकवृक्षः ॥

(d) ,, विष्ठोपचारेण etc.

(e) ,, मूत्राविजवारिसिक्तः etc.

सुरभिजलनिषेकतो निदाघे[a]
कूणपजलेन च केतकी निषिक्ता ।
जलधर समये सुगन्धसूची-
चयनिचितानि विभर्त्ति पल्लवानि ॥१६१

यस्य कस्यापि पुष्पस्य सौरभेणाधिबासितान् ।
मृत्तिकाशकलान्मूले वृक्षाणां वहुलान्क्षिपेत् ॥१६२
कुष्ठपत्रमुरामुस्ततगरोशीरचूर्णकैः ।
मिश्रितेनाम्भसा सेकान्मासं सौरभसंभवः ॥१६३
कुल्माषदन्तिदन्तानां चूर्णयुक्पङ्कसंभवा[b] ।
प्रत्यहं पुष्पिताम्भोजमण्डिता पद्मिनी भवेत् ॥१६४
सिद्धार्थः कदलीदलानि शफरी विट्कोलमार्जारयो-
रेतेषां समभागमाज्यसहितं चूर्णं तरुभ्यो हितम् ।
दत्तं धूपविलेपनोपचरणैरोप्यायनं रोगहृ-
च्छाखाः पल्लवयत्यलं मधुकरव्यालोलपुष्पच्छदाः ॥१६५

धूपो घृतस्य समृदो यववारिसेको
नित्यं च दुग्धसलिलैः कुणपाम्बुभिर्वा ।
लेपो विडङ्गतिलकल्ककृतः शिशूनां
वृद्धिं करोति परमां खलु भूरुहाणाम् ॥१६६

अङ्कोल्लक्वाथतोयेन मिश्रितं घृतमाक्षिकम् ।
बसा किटिकुरङ्गानामेतैः सिक्ता महीरुहाः ॥१६७
सिद्धार्थकफलोपेताः सर्वदा फलशोभिताः ।
जायन्ते पुष्पपत्राढ्याः सच्छाया रोगवर्जिताः ॥१६८
यष्टिमधूकपुष्पानि सिता कुष्ठं समाक्षिकम् ।
निक्षिप्य गुलिकाः कृत्वा मूले सर्वत्र निक्षिपेत्[c] ॥१६९
दुग्धसेकं च वृक्षस्य यस्य कुर्याद्विचक्षणः ।
फलं सुनिश्चितं तस्य मधुरं जायते भृशम् ॥१७०

(a) गणनाथ—सुरभिजलेन निदाघे etc.
(b) ,, चूर्णयुक् पुष्पसम्भवा ।
(c) ,, निष्पिष्य गुटिकां कृत्वा मूले सर्वत्र निःक्षिपेत् ॥

अथ कुणपजलम् ।

कुरङ्गकिटिमत्स्यानां मेषच्छागलखड्गिनाम् ।
मांसं ग्राह्यं यथालाभं मेदोमज्जावसास्तथा ॥१७१
तान्सर्वानेकतः कृत्वा वह्नौ नीरेण पाचयेत् ।
संपक्वं हि क्षिपेद्भाण्डे तत्र दुग्धं च निक्षिपेत् ॥१७२
चूर्णीकृत्य खलिर्ह्या तिलानां माक्षिकं तथा ।
स्विन्नांश्च सरसान्माषांस्तत्र दद्याद्घृतं तथा ॥१७३
उष्णं जलं क्षिपेत्तत्र मात्रा नास्तीह कस्यचित् ।
पक्षैकं स्थापिते भाण्डे कोष्णस्थाने मनीषिणा ।
कुणपस्तु भवेदेव तरूणां पुष्टिकारकः ॥१७४

अथ तरुचिकित्सा ।[1]

नराणामिव वृक्षाणां वातपित्तकफाद्गदाः ।
संभवन्ति निरूप्यातः कुर्यात्तद्दोषनाशनम् ॥ १७५
कीटजग्धेग्निसंप्लुष्टे वातभग्नेशनिक्षते ।
वृक्षे छेदोपचारादिपीड़ते च पृथक्क्रिया ॥ १७६
कृशदीर्घो लघुरुक्षो निद्राहीनोल्पचेतनः ।
न धत्ते फलपुष्पाणि वातप्रकृतिकस्तरुः ॥ १७७
आतपासहनः पाण्डुः शाखाहीनो मुहुर्यदि ।
अकालफलपाकी स्याच्छाखी पित्तात्मकः स्मृतः ॥ १७८
स्निग्धशाखादलः शाखी सम्यक्पुष्पफलोज्ज्वलः ।
लतापरीतगात्रस्तु कफवान्परिमण्डलः १७९
कटुतिक्तकषायरसैः पवनः पित्तं कटूष्णलवणाम्लैः ।
स्निग्धमधुराम्ललवणैः श्लेष्मा कोपं प्रयाति तरोः ॥ १८०

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1 The genesis of the science of Phytopathology can be traced to a verse in the Atharvaveda (BK. VI. 50). See Sāyana's commentary thereon (Kauśika 51, 17—22).
Cf. also Vinaya Piṭaka C. X. 1. 6, where we find definite mention, by way of an analogy, of two of the most important cereal diseases, the "blight" and the "mildew";
Arthaśāstra, chap. 24.
Agni P. chap. 281.
Bṛhatsaṁhitā, chap. 54.
Guṇaratna's Commentary on Ṣaḍdarśana Samuccaya.
Śukranīti, IV. ii, 56—57.

सुस्निग्धैः पिशितरसैः प्रयाति वातः
सुस्निग्धैर्मधुरहिमैर्जलैश्च पित्तम् ।
कट्वम्लैरहिमजलैः कषायरुक्षैः
श्लेष्मापि क्रमविहितैः प्रयाति नाशम् ॥ १८१

रौक्षं ग्रन्थिः कुटिलता वाताद्वृक्षस्य जायते ।
गोविड़्लोध्रवसाकुणपजलैस्तज्जयो भवेत्[a] ॥ १८२

दोषैर्यस्य विना प्रवालकुसुमम्लानिर्विरूढं वपुः
मूले तस्य तरोर्भवन्ति कृमयो यत्नाच्च तानुद्धरेत् ।
गोमुत्राज्यविडङ्गसर्षपतिलैर्लिप्तः प्रणष्टैस्ततः[b]
सिक्तः क्षीरजलैरुदेति सहसा धूपैश्च धूपायितः ॥ १८३

करञ्जारग्वधारिष्टसप्तपर्णत्वचाकृतः ।
उपचारः क्रिमिहरो मूत्रमुस्ताविडङ्गवान् ॥ १८४

कुणपजलपयोनिषिक्तमूलः
सरसिजकन्दविलिप्त सर्वगात्रः ।
तरुरनलहतो विभर्ति भूयो
मरकतरङ्गहरिन्ति[c] पल्लवानि ॥ १८५

प्लक्षार्कोदुम्बरत्वग्घृतमधुमधूरोच्छिष्टदुग्धैर्विलिप्तः
स्तम्भैरुत्तम्भ्य रज्ज्वा परिकलितवपुः पूरितः प्लक्षमृद्भिः[d] ।
सिक्तः क्षीरेण भूयो जलभरिततलश्चराडवातादिभग्नः
स्वस्थोभूत्वाङ्घ्रिपायी कुसुमफलभराण्यातनोति प्रकामम्[e] ॥ १८६

वृक्षस्याशनिदग्धस्य जीवनं शृणु भेषजम् ।
घनोशीरमधूकैश्च मुद्गमाषान् यवांस्तिलान् ॥ १८७

(a) गणनाथ—रौक्ष्यं ग्रन्थिगुंटिका वाताद्वृक्षस्य जायते नित्यम् ।
गोविड़्भिर्लोध्रवसाकुणपजलैः स जितोभवेदेवं ॥

b) „ गोमूत्राज्य-विड़ङ्ग-सर्षप-तिलैर्लिप्त्वाह्यनष्टैस्ततः ।

(c) „ मरकतकान्तिनिभानि etc.

(d) „ पूरितः श्लक्ष्णमृद्भिः ।

(e) „ कुसुमफलभरं व्यातनोति प्रकारं ॥

पिष्ट्वा क्षीराम्बुसंयुक्तैः सेचयेत्तमभीक्ष्णशः ।
स सेकाप्यायितः शीघ्रं प्रकृतिस्थो भविष्यति[a] ॥ १८८

जनयित्वा फलकुसुमं यः पुनरुपयाति वन्ध्यतां शाखी[b] ।
सक्षीरैः कुणपजलैर्भूयः सिक्तः फलत्येव ॥ १८९

असेकतोऽत्यन्त निषेकतश्च
शाखाविशोषं फलिनो निरूप्य ।
सप्ताहमात्रं सृतमेव सर्पि-
र्विड़ङ्गदुग्धाम्बु निषेचनीयम् ॥ १९०

उन्निद्रता मत्स्य सगन्धिता च
प्रवालहानिः सपिपीलिकत्वम् ।
त्वग्भ्रंशनाद्वारिकृतादजीर्णा-
त्तरोर्भवेत्तत्र चिकित्सनीयम् ॥ १९१

तन्मूलशूलं[c] परशुप्रहारै-
र्विस्रावितं दोषरसं निहत्य ।
क्षौद्राज्यजन्तुघ्नतिलैः प्रलिप्तं
मृत्पूरितं दुग्धजलैर्निषिञ्चेत् ॥ १९२

शर्करातिलगोक्षीर वारिसेकात्तथा तरोः ।
शोषः शाम्यति वृक्षस्य लेपाद्धूपोपचारतः ॥ १९३

प्रियङ्गुवरकर्कारीवेतसार्जुनवल्कलैः[d] ।
क्षीरसिद्धैर्विलिप्तानां स्रावः शाम्यति शाखिनाम् ॥ १९४

अथ विचित्रकरणम् ।[1]

वृक्षायुर्वेदफलं मनोहरं शास्त्रतः सिद्धम् ।
नानाविधानचित्रं चित्रीकरणं प्रवक्ष्यामि[e] ॥ १९५

(a) गणनाथ—पिष्ट्वा क्षीराम्बुसंसिक्तैः सेचयेत्तमभीक्ष्णशः ।
संसेकाप्यायनात् शीघ्रं प्रकृतिस्थोभवेत्तरुः ॥

(b) ,, वृद्धतां शाखी ।

(c) ,, तन्मूलदेशे etc.

(d) ,, प्रियङ्गुवनतर्कारीवेतसार्जुन etc.

(e) ,, वृक्षायुर्व्वेदफलं मनोहरं शास्त्रतोऽपरं नास्ति ।
नानाविधवृक्षाणां चित्रीकरणं प्रवक्ष्यामि ॥

1 Cf Bṛhatsaṁhitā, chap. 54, 27-30. The reader is requested to read in this connection "New Creations in Plant-life" by Harwood, Macmillan & Co. (1905),

सुरभिसुमनोलब्धामोदां निधाय च मृत्तिकां
धवखदिरयोः क्वाथाम्भोभिः सुगन्धिभिरुक्षणात्[a] ।
मलयजरजोलेपाद्धूपाद्घृतस्य च भूरुहां
व्रजति कुसुमं निर्गन्धानामतीव सुगन्धताम् ॥ १९६
यवतिलनिशापलाशैरुपचितमूला तदम्बुसिक्ता च ।
ज्वलदनलोपममसकृत्कर्पासी तूलकं सूते ॥ १९७
शाल्मलीत्वग्निशानीलीत्रिफला कुष्ठसीधुभिः[b] ।
सकृल्लेपोपचारेण शुकपत्त्रनिभं भवेत् ॥ १९८

मञ्जिष्ठातिलयवपीतसारसारै-
र्जीवन्तीदलसहितैर्मनः शिलाजैः ।
गोजाविप्रचुरपयःसृतैर्विलिप्ता
कर्पासी प्रसवति तूलकं खनीलम्[c] ॥ १९९

संपक्वेक्षुरसविदारिकन्दकविलिप्तमूलभागस्य ।
सिक्तस्येक्षुरसेन च तरोरकाले भवेत्कुसुमम् ॥ २००
तिलखलिविडङ्गगोमयविलोडितेक्षुरससेचितस्य तरोः ।
फलकुसुममकालभवं मनोहरं फलति लोकस्य ॥ २०१
मधुयष्टिसिताकुष्ठ मधुपुष्पविनिर्मितैः ।
मोदकैश्छादिते मूले निरस्थि स्यात्फलं तरोः ॥ २०२
मधुककुसुमगुञ्जाशर्करोदुम्बराज्यं
समधु निहितमन्तः[d] काण्डमुत्कीर्य बद्धा ।
उपरि च परिलिप्तं वत्सविड्भिस्तरूणां
जनयति फलमेतत्स्वादुसेकादनस्थि ॥ २०३
तत्कालनिहितस्योच्चैः श्लागस्य स्कन्धचर्मणा ।
बद्धायां वृक्षशाखायां फलपाको न जायते ॥ २०४

(a) गणनाथ—सुमं हि निरुक्षणात् ।
(b) ,, कुष्ठ-सिन्धुभिः ।
(c) ,, कार्पासाङ्कवति तूलकं खनीलं ॥
(d) ,, मधुविनिहितमन्तः etc.

करिवरमृदितवलीमुखनलकैर्मूलेषु कीलितस्य तरोः ।[a]
संवत्सरं च यावत्फलितस्य फलानि जायन्ते[b] ॥ २०५
बद्ध्वा चर्म्मतृणाभ्यां विडङ्गमधुदुग्धलेपितोल्लिख्य[c] ।
शाखा पयोम्बुसेकाच्चिरमपि पक्वं फलं धत्ते ॥ २०६
मीनकोलवसामांसदुग्धसेकेन धूपतः ।
सर्वबीजानि साश्चर्यमुत्तिष्ठन्ति फलन्ति च ॥ २०७
अङ्कोलतैलसूकरशिशुमारवसासु भावितं बीजं ।
सद्यो रोहति निहितं भूमौ करकाम्भसा सिक्तम् ॥ २०८
बीजमाम्रादिवृक्षाणां पक्वं मीनफलाम्बूनि ।
अङ्कोलतैलदुग्धाज्ये निहितं बृहतीभवेत्[d] ॥२०९
भस्मन्यामेलितं शुष्कमुप्तमुद्भिद्यते सह ।
फलेनाशेषलोकस्य कृतकौतुकमञ्जसा ॥२१०
एकविंशतिवारेण कुक्कुटस्यासृजोक्षितम् ।
तत्क्षणाद्दाडिमीबीजं वर्द्धते फलति ध्रुवम् ॥२११
मत्स्यकोलवसामांस चणकक्षारभावितम् ।
यस्य कस्यापि वा बीजं ध्रुवं[e] पुष्पफलं भवेत् ॥२१२
स्कन्धतः समन्ततः सूकरास्थिभिर्दृढम् ।
कीलितो न संशयं नाशमेत्यनोकहः[f] ॥२१३
कुलत्थक्काथ तोयेन तरुः पुष्पफलं त्यजेत् ।
किंशुकार्जुनतर्कारीलवणाम्बूक्षणेन च ॥२१४

(a) गणनाथ—करिमदमृदितवलीमुखमुखनलिकैर्मूलेषु etc.
(b) ,, सम्वत्सरं न यावत् फलितस्य फलानि पच्यन्ते ॥
(c) ,, वद्ध्वचर्म्मतृणाभ्यां विडङ्गमधुदुग्धलिप्तमुल्लिखिता ।
(d) ,, वीजादाम्रादिवृक्षाणां फलं मीनफलाम्बुनि ।
अङ्कोल तैलदुग्धाज्ये निहितात् सुवृहद्द भवेत् ॥
(e) ,, वीजं द्रुतं etc.
(f) ,, समन्ततः स्कन्धतः स सन्दृढं शूकरास्थिभिः ।
कीलितो न च संशोषं नाशमेतीत्यनोकहः ॥

नानावर्णैर्घटितं कन्दं कुमुदस्य सूत्रसंघटितम्[a] ।
घृतमधुविलिप्तमुप्तं सूते कुसुमं तथावर्णाम् ॥२१५
माहिषकरीषमूत्रैर्मृदितविशुष्कं दिनानि यत्सप्त ।
कुमुदफलबीजमुप्तं जनयति करवीरविटपं तत् ॥२१६

कुष्माण्डवार्ताक पटोलकादि-
बीजं वसाभावितमुप्तसिक्तम् ।
विशोधितायाम् भुवि सर्वकालं
फलान्यनस्थीनि महान्ति धत्ते ॥२१७
वार्ताकबीजं घृतमाक्षिकार्क-
विशोषितं गोमयलिप्तरन्ध्रे ।
बालस्य कुष्माण्डफलस्य तप्तं
पक्वाद्गृहीतं[b] फलितं महत्स्यात् ॥२१८

मन्दारद्रुमरन्ध्रे या कौष्माण्डी निर्गतालता ।
मृद्गोमयघृते[c] तस्मिन् सिक्ते फलति सा सदा ॥२१९
सूकरासृग्वसासिक्तमङ्कोलतैलभावितम् ।
एरण्डबीजं कारञ्जीफलं[d] सूतेति कौतुकम् ॥२२०
खरतुरगविड् निवेशिततापितया या शलाकया मूले ।
तिर्यग्बिद्धा कदली फलति फलं करिकराकारम् ॥ २२१
कोलशोणितमेदोभ्यामङ्कोलक्वथितेन च ।
सिञ्चिता कदली सूते दाडिमीफलमुत्तमम् ॥ २२२
नरमांसवसारक्तदन्तिदन्तविचूर्णितैः ।
मिश्रितेनाम्भसा सिक्ता रम्भा चूतफला भवेत् ॥ १२३
अङ्कोलक्वथितं स्विन्नं नृमांसं छागदुग्धयुक् ।
पिण्याकसहितं मूले सहकारस्य निक्षिपेत् ॥ २२४

(a) गणनाथ—कुमुदस्य सूत्रसंघटितं ।
(b) ,, पक्वं गृहीतं etc.
(c) ,, मृद्गोमययुते etc.
(d) ,, एरण्डबीजं कारञ्जीफलं etc.

द्राक्षावल्लीसमाकारः सहकारः सदाफलः ।
जायते निश्चितं धत्ते सर्वेषामद्भुतं यदि ॥[a] २२५
शशकूर्मासृग्मध्ये बहुभावितमाम्रजं बीजम् ।
रूढं सिक्तम् दुग्धैः फलति फलं सर्वकालेषु ॥ २२६
कृमिरिपुयवयष्टीमधुगुडदुग्धविलेपनेन निम्बतरुः ।
भवति जलदुग्ध सिक्तः स्वभावतिक्तोपि मधुरफलः[b] ॥ २२७
बीजं नरपलाङ्कोलतैलस्विन्नं शुभं सदा ।
उद्गच्छति मृदा पूर्णमम्भःसिक्तं करे क्षणात् ॥ २२८
अङ्कोलतैलभावितमुषितं गोशकृति कुमुदकन्दमलम् ।
करकाम्बुकर्दमभृते कलशे कुसुमं समुद्वहति[c] ॥ २२९
गोकोलास्थिकरीषैस्तु दग्धे गर्त्ते विशोधिते ।
उप्तं च वालुकापूर्णे मूलकं गर्तवद्भवेत् ॥ २३०
इष्टकचिते समन्तात्पुरुषनिखातेवटे तरुर्जातः
वामन एव हि धत्ते फलकुसुमं सर्वकालमिति ॥ २३१

अथान्नादिनिष्पत्तिज्ञानम् ।[1]

फलकुसुमपत्रवृद्धिं वनस्पतीनां विलोक विज्ञेयम् ।
सुलभत्वं द्रव्याणां निष्पत्तिश्चापि सस्यानाम् ॥ २३२
न्यग्रोधेन तु यवकास्तिन्दुकवृद्धत्या च षष्टिको भवति ।
अश्वत्थेन ज्ञेया निष्पत्तिः सर्वसस्यानाम् ॥ २३३
जम्बूभिः स्थलमाषाः शिरीषवृद्धत्या च मुद्गनिष्पत्तिः ।
गोधूमाश्च मधूकैर्यववृद्धिः सप्तपर्णेन ॥ २३४
करिणश्च हस्तिकर्णैर्निर्देश्या वाजीनोश्वकर्णेण ।
गावश्च पाटलाभिः कदलीभिरजाविकं भवति ॥ २३५

(a) गणनाथ—धत्ते सर्व्वेषामद्भुतं फलं ॥

(b) ,, कृमिरिपु-यव-यष्टीमधु-गुड़-दुग्धविलेपितो विभीततरुः ।
भवति कटुष्ण-जलसिक्तः स्वभाव etc.

(c) ,, करकाम्बुकर्द्दमभृति कलसे कुसुमं समुद्भवति ॥

1 Cf. Bṛihatsaṁhitā, chap. 29. Translated and quoted in the Introduction and the Appendix.

आम्रै क्षेमं भल्लातकैर्भयं पीलुभिस्तथारोग्यम् ।
खदिरशमीभ्यां दुर्भिक्षमर्जुनैः[a] शोभना वृष्टिः ॥ २३६
पिचुमन्दनागकुसुमैः सुभिक्षमथ[b] मारुतः कपित्थेन ।
निचुलेनावृष्टिभयं व्याधिभयं भवति कुटजेन[c] ॥ २३७

एते नानावृक्षायुर्वेदशास्त्रेभ्यः ॥

समाप्तः ।

(a) गणनाथ—दुर्भिक्षमर्जुनेन etc.

(b) ,, सुभिक्षमपि etc.

(c) ,, निचुलेनावृष्टिः स्याद्व्याधिभयं वै भवति कुटजेन ॥
एते नीता वृक्षा आयुर्वेदादि शास्त्रेभ्यः ।
अन्येऽपि सन्ति बहवस्तेषु च कथिता वनस्पतयः ॥

UPAVANA-VINODA

THE TRANSLATION

HERE BEGINS THE CHAPTER OF "THE SCIENCE OF PLANT-LIFE" DEALING WITH UPAVANA-VINODA—THE ART OF ENJOYMENT BY GARDENING

1. He is verily the king whose abode is provided with spacious gardens, containing large tanks or pools adorned with beautiful lotus blossoms over which humming bees fly—that may be regarded as the consummation of all happiness on the part of men, and that give intense pleasure to the mind of sportive and pleasure-seeking ladies puffed up with the pride of beauty.

2. If pleasure-seeking sovereigns have no gardens wherein to seek pleasure, the delicate and fine bodily from, bevy of fair and youthful ladies, compeers excelling in pleasing arts and sonorous lutes and profusion of wealth—all these are useless.

3. I am expounding in detail that subject after a thorough study of the treatises compiled by the sages of old. May the noble-minded and upright readers find delight in looking it through, and judging it as a whole (for what it is worth).

HERE BEGINS THE SECTION CALLED TARUMAHIMA—THE GLORY OF TREES

4. Better to have a tree (planted) by the wayside where many rest under its shade than to have many sons born who are devoid of wealth and virtue.

5. We read in the Śāstras that (excavation of) a pond is equivalent (in virtues) to (sinking of) ten wells, a lake is equivalent to ten ponds, and a son is equivalent to ten such lakes and a tree is as good as ten sons.

6. He, who for pleasure makes him a good garden full of fruit and flower trees, is destined to go to the abode of Śiva and resides there for as many as three ages.

7. One should plant trees with full knowledge of these particulars, in as much as, from trees proceed virtues, material prosperity, fulfilment of desires and salvation—all these four sovereign things.

8. A man is sure to reside in Vaikuṇṭha (the abode of Viṣṇu) for as many thousand years as there are Basil plants planted in his house.

9. Lakṣmī (the Goddess of Wealth) lives for generations in the house of a man who plants the Vilva trees, peculiarly favourite with Śiva.

10. He, who plants Aśvattha trees after proper methods, no matter where, goes to the abode of Viṣṇu.

11. He, who plants the Āmalaka trees, reaps the fruit of constant asceticism, the giving of earth and of many sacrifices (yajña).

12. He, who plants after a proper method two Banyan trees, goes to the abode of Śiva, and is waited on by the seraphim.

13. The virtuous man who plants three Nimba trees attains to the abode of the Sun and stays there for three thousand years.

14. There can be no doubt of the fact that the man who plants four Plakṣa trees enjoys the fruits of a Rājasūya sacrifice.

15. He, who plants five Āmra trees by the wayside or in the garden, secures the salvation of fourteen generations past and future, backward and forward.

16. He, who plants six Śiriṣa trees by the wayside, attains to the abode of Garuḍa and spends his days there in as much pleasure as the gods do.

17. The man who plants either seven or even one Palāśa tree, gets at the abode of Brahmā and is waited upon there by the best of gods.

18. He, who plants eight Udumbara trees himself or gets them planted by others, reaches the abode of the Moon and enjoys intensity of pleasure there.

19. He, who plants a Madhuka tree, becomes free from all diseases, and by him all the gods, especially, the goddess Pārvatī is pleased or gratified.

20. He, who plants a tree along with any of these trees: Kṣīrika, Kadalī, Drākṣā Piyāla, Panasa, etc., ensures himself against all diseases for seven lives (births) to come.

21. He, who plants a Jambū tree, either with knowledge or in ignorance, enjoys the fruits of virtue in his own house every day.

22. He, who plants trees capable of bearing fruits and flowers besides those that have already been mentioned enjoys the fruits of the gift of one thousand cows of gold.

23. He, who plants Aśvattha, Pichumanda, Nyagrodha, one each; ten Tamarind trees, and Kapittha, Vilva and Āmalaka, three each, and five mango trees, is never fated to see hell

II. HERE BEGINS THE SECTION CALLED NIBASASANNATARU-SUBHASUBHALAKSHMANANI—THE GOOD AND EVIL OMENS RELATING TO RESIDENCE NEAR TREES

24. The presence of Banyan tree in the east of a house means fulfilment of all desires, and Udumbara tree in the south, Pippala in the west and Plakṣa in the north are productive of good,—everything else is to be strictly forbidden.

25. One should do well to avoid Aśvattha tree in the east of a house, Plakṣa tree in the south, Banyan tree in the west and Udumbara in the north ;

26. For this simple reason that gods and demons and semi-celestial beings, gandharvas and kinnaras, snakes and voracious demons. beasts and birds and men,—all these have recourse to trees, or take shelter under them.

27. Hence one should do well to avoid the shades of all trees in one's house ; one should not plant in front of one's house a tree even if it is made up of gold.

28. Children do not multiply in the house of a man wherein germinate (grow) Vadarī, Kadalī, Dāḍima and Vījapūraka.

29. A man desirous of happiness should not plant in his house Palāśa, Kāñchana, Śleṣmāntaka, Arjuna and Karañja,—all these five trees.

30. A thorny plant nereby is productive of danger from enemies, and the proximity of a Kṣīri-vṛkṣa causes loss of wealth, and a fruitful thorny tree which is also milky leads to loss of human lives : one should do well to avoid even the very good of these trees.

31. If one plants Nīlī and Haridrā, one is destined to be ruined himself together with his sons and all his wealth. If these trees grow even of themselves the persons versed in the laws should cut them off in accordance with the sayings of the Sages.

32. One should never make a garden in the *nairt* or *agni* corner of one's house ; if one does so distress and sorrow will be the outcome.

33. If one lays out a garden in the north or in the west of one's house, one's children and grandchildren multiply ; hence a landlord, i. e., the proprietor of a house, should make gardens after these rules.

III. HERE BEGINS THE SECTION CALLED BHUMINIRUPANAM —THE SELECTION OF SOILS

34. Three main types of soil, viz., Jāṅgala (barren), Anūpa (moist) and Sāmānya (ordinary) are divided into six on the basis of colour and taste.

35. Soils having black, pale (shady), blue, red, yellow and white colour or appearance are respectively associated with sweet, acid, salty, sour, bitter and pungent tastes.

36. The soils that are poisonous, or stony, or full of anthills, or barren, or full of gravels, and that which still remain uneven even when ploughed, or that which has water hidden in its depths are not favourable to the growth of trees.

37. Do well to know that the soil which has the brilliance of blue gems, that which is as soft as the feather of the Śuka-bird, that which is as white as the conch, the Kumuda flower, or the moon, and that which has the colour of melted gold, or that of a blown Champaka flower,—all these are favourable for the growth of trees.

38. All kinds of trees flourish in the soil which is even, the soil near which there is water, and where the sprouts of trees put on green appearance.

39. The soil, which is neither barren nor watery, may be said to be Ordinary, and there all types of plants grow.

40. Panasa, Lakuca, Tāli, Baṃśa, Jambīra, Jambū, Tilaka, Vata, Kadamba, Āmrātaka, Kharjūra, Pūga, Kadalī, Tiniśa, Mṛdvī, Ketakī and Nālikera,—all these trees grow in Anūpa soil.

41. Vījapūraka, Punnāga, Champaka, Amra, Atimuktaka, Priyaṅgu, Dāḍima and similar others,—all these trees grow in the ordinary soil.

42. The trees which do not ordinarily grow in a particular type of soil may do so if there is wealth hidden under it, or through the grace of gods, or through the grace of sovereigns.

IV. HERE BEGINS THE SECTION CALLED PADAPAVIVAKSHA— THE CLASSIFICATION AND PROPAGATION OF PLANTS

43. Plants are classified into trees, shrubs, creepers and herbs, and they propagate through seeds, cuttings, and bulbs.

44. The trees which produce fruits without flowers, are called **Vanaspatis**, and those which produce fruits and flowers are called **Drumas.**

45. Those that spread themselves on the ground are called **Latas** and those that spread themselves in several branches a little above the ground are called **Gulmas**.

46-47. Do well to know that Jambū, Champaka, Punnāga, Nāgakeśara, Ciñciṇī, Kapittha, Vadarī, Vilva, Kumbhakāri, Priyaṅgu, Panasa, Amra, Madhūka and the like, Karamarda and similar others grow out of seeds; and Tāmbūlī, Sindhuvāra, Tagara and such others grow out of *kānda* (portions of stems, i. e., cuttings).

48. And Pātalā, Dāḍima, Plakṣa, Karavīra Vata and such others, Mallikā, Udumbara, Kunda and others grow out of seeds and cuttings.

49. Kuṁkuma, Ārdra, Rasona, Āluka, grow out of *kanda* (bulbs, and such other underground stems), and Elā, Padma, Utpala and such others grow both out of *kanda* and seeds.

V. HERE BEGINS THE SECTION CALLED VIJOPTIVIDHI— THE RULES FOR THE SOWING OF SEEDS

50. One should sow pulses and sesamum on a level ground after it has been thoroughly ploughed with a plough, and should cut the crops when they are ripe and then should sow seeds on that ground again at pleasure.

51. First of all one should take well-matured seeds of fruits of the season, sprinkle milk and clarified butter over them, keep them for five days (in this condition), and then fumigate them with frankincense. Or,

52. One should besmear these seeds thus sprinkled with milk, with powders of Vṛhatī and sesamum mixed with ghee, dry them and besmear them again with cowdung, and then fumigate with fat of some animal. If the seeds thus prepared are sown they sprout in a single night.

53. After besmearing with cowdung the seeds sprinkled with milk, one should dry them and besmear them again many times with powders of Viḍaṅga mixed with honey and sow them ; and they will sprout very soon.

54. The seeds of Jambū, Panasa, Cūta, Sarala, Lakuca should be treated with milk and sown with ghee, cowdung and Viḍaṅga dust mixed therewith.

55. A person (the master of the household) after taking ablution and putting on well-washed clothes, and after worshipping the gods, and making obeisance to his *Guru* (spiritual preceptor) and giving away earth or money to a qualified Brahmin, and making obeisance again to the presiding deity of foundation (Vāstupuruṣa) should himself sow seeds. His attendants should follow suit.

56. One should first of all sow seeds in the seed-bed, spread grass over it and sprinke milk and water, and then when the seeds germinate, remove the grass, dry the earth a little, and transplant these sprouts together with their roots and the earth attached thereto.

VI. HERE BEGINS THE SECTION CALLED ROPANAVIDHANAM—THE PROCESS OF PLANTING

57. The process of planting trees is being laid down, because the trees when planted irregularly lose their beauty and vigour.

58. Dhruba (Rohiṇī, Uttaraphalguṇī, Uttarāṣāḍā and Uttarābhādrapada), Mṛdula (Citrā, Anurādhā, Mṛgaśirā and Revatī), Mūlā Viśākhā, Puṣya, Śravaṇā, Aśvinī and Hastā—all these constellations are characterised as mild, and they are favourable to the planting of trees according to the sages.

59. When a sprout planted after being sprinkled with milk grows one cubit in length, one should dig it out together with the earth attached thereto and then apply to it roots of Uśīra, Viḍaṅga and ghee pasted together and then replant it in a pit together with cowdung.

60. One should plant a tree (seedling) in a pit two cubits in depth, well watered, filled with fine dusts of earth free from sands, and filled with cowdung. Plantain sprouts and *ksīri* (with milky sap) trees should be planted after applying only cowdung to their roots.

61. First of all one should knead well a ripe plaintain fruit and besmear a long straw rope with this paste (thus prepared), then put the rope (thus

treated with banana paste) down in the ground lengthwise. Then for a long number of days one should go on sprinkling water upon it little by little.

62. Then, sprouts having bluish and reddish appearance like the fresh Tamāla tree, will sprout out of that rope; and then when by degrees branches, leaves and roots will become visibly manifest, one should plant these sprouts elsewhere and sprinkle water upon them.

63. Seeds (of trees and other garden plants) should be sown during the months of Āṣāḍha and Śrāvaṇa; and some opine that they may be sown in any season of the year, except the summer.

64. One should lay out the trees in the garden so as to look like an altar, a *nandyāvarta*, a *swastika*, a *caturasra*, a *sarvatobhadra*, a *bīthi* (avenue lined with trees), a *nikuñja* (grove—bower), and in clusters (here and there).

65. One should plant trees at an interval of 10 cubits in the lower level of the garden, and at 20 cubits in the higher and at 16 cubits in the middle; but if the surface of the garden be plane one should plant grass-like plants at an interval of 2 cubits, trees at 4 and gulmas at 3 cubits apart.

66. Trees if thickly sown are hindered in their growth and if sown very sparsely they are in danger of falling down even in consequence of mild winds; hence for lean plants, in the laying out a garden, planting after the method described above is wise.

67. The trees, the fruits and flowers whereof are not enjoyable by men, the upper parts whereof drop off, which produce fruits without producing flowers, are regarded as inauspicious in the Śāstras: Jackfruit tree is an example.

68, Mātuluṅga, Rajani, thorny plants, Kiṃśuka, Girikarṇikā, Asitā, Tintiḍī, Viphalākṣa, Nīlikā, Kovidāra,—are productive of danger.

69. A fruitful tree, Aśoka, Punnāga, Śiriṣa, Nimba and Champaka—are conducive to welfare and should be planted before all. Do well to know that Bhallātaka is productive of diseases.

70. One should plant Karamardda and Bamboo in the east of a garden, Pārāvata in the south, Vadarī and Kapittha in the north, and Dhātrī in the west. One should plant trees with an eye to the fact that there is room for the spread of their roots and one must see that the leaves of each other do not touch.

VII. HERE BEGINS THE SECTION CALLED NISHECHANA-VIDHI—THE-RULES FOR WATERING OF PLANTS

71. One should water the newly planted trees both in the morning and evening, and should systematically protect them against cold and strong wind.

72. One should water them every alternate day in autumn and in winter ; every day in spring and twice a day during the summer, i.e., once in the morning and once in the afternoon.

73. During the rainy and autumn seasons when it does not rain one should fill the circular ditch under the tree with water.

74. One should go on applying water till the earth attached to the roots of the tree becomes wet ; one should not measure the quantity of water applied to this purpose.

75. Trees suffer from indigestion if the water in the ditches is not dried up, hence one should not pour fresh water in it till that is the case.

76. A person versed in the laws should not hesitate, in the interest of trees, to extirpate the weeds, creepers and shrubs which grow beside them.

VIII. HERE BEGINS THE SECTION CALLED DRUMA-RAKSHA— THE RULES FOR THE PROTECTION OF TREES

77. One should carefully protect trees against (destructive influence of) dew, strong wind, smoke, fire and spiders.

78. Trees blessed with flowers should be placed in the middle of the row of trees ; and the fruits of those which produce good fruits should be kept covered, and all trees should be well protected with walls having ditches around them.

79. One should take up the ashes of trees struck by lightning, throw the same round other trees and this will ensure the latter against cold. These have the power to allay (extinguish) even the burning fire.

80. Throwing boiled Śāli rice of white variety mixed with curd and rock salt round trees ensures their protection against poisonous (harmfull) rain injurious to them.

81. If one apprehends danger from mice, locusts, ants, etc., one should utter the following formula (mantra) 108 times, and write it down on the leaf of a tree.

Oṃ svasti kiṣkindhāsthita prakataparākramāntarhitārkamaṇḍalopajīvitasya ca Śrīhanumānājñapayati mūṣakapataṅgapipīlikāśalabhakarabhānvakakiṭagandhikānivahairṇasthātavyam. Ājñāmatikramamāṇasya śarīranigraha samāvartayati. Tasya vānarasiṃhasya kramamāṇasya śāgaram. Kakṣāntaragatō vāyurjīmūta iva nardati. Huṃ phat namaḥ.

82. And after writing down the (above) formula on the leaf and reciting it one should burry it in the ground under the tree. This will lead to the destruction of locusts, mice and ants of the field.

IX. HERE BEGINS THE SECTION CALLED UPAVANA-PRAKRIA—THE CONSTRUCTION OF A GARDEN

83. One should construct garden-houses in a place where the sun's rays are prevented by a canopy of newly grown leaves, which is adorned with blooming flowers, rocked by breezes and covered with Mādhavī creepers bristling with restless black bees.

84. There one should make a swing out of the strong creepers attached to the branches of two trees, fit for a couple to sit on.

85. In some places within the garden one should, for the purpose of enjoyment, make (artificially) a nice, beautiful or lovely cave adorned with branches of trees, leaves and creepers ; or, artificial peaks situated on a mound covered with trees ; or a variety of caves associated with a good many gems and precious stones brought from mountains ; or many artificial mountains adorned with metals of different colours.

86. And there for the purpose of preventing fear from snakes as well as for the display of beautiful dance one should keep peacocks.

87. In places one should dig ponds, the rows of trees on the bank of which will mistake their own shadows reflected in the water for their own bodies.

88. Steps should be constructed in places whereby men can descend with ease into the vast artificial lake with pleasure boats in it, and on all sides of the steps flower trees should be planted ; and care should always be taken to see that ferocious animals do not live in the water of that beautiful lake, and that the lake is always tenanted by birds like swans Attempt should be made to intensify the beauty of the lake by having flowers of various colours, like lotuses, mallikā, blue lotus, etc. in different places of it.

89. In places one should construct artificial lake with such eye-delighting water in it that the reflection of the moon-beams in it causes the illusion of a garden in water.

90. One should plant trees bent down under the weight of sweet flowers on all sides of the white and well-ventilated houses—houses as white as the peak of the Himalayas—built inside the artificial lake referred to above. And in places of the garden one should construct circular seats as white as marble, and should make bowers of plantain trees in places where there is gentle breeze.

91. In places of the garden deep wells, paved on all sides with stones, with sweet water in it, should be dug with the water of which all the trees of the pleasure garden may be well watered.

92 & 93. If the water of the well be polluted, and become pungent, bitter, tasteless, salty or malodorous, Añjana, Musta, Uśīra, Nāgakeśara, Kosātaki,

powdered Āmalaka together with Katakaphala should be thrown into it; and this will make the foul water transparent, tasteful and fragrant, and in addition will confer on it many other good qualities.

X. HERE BEGINS THE SECTION CALLED KUPARTHAM BHUMIPARIKSHA—THE EXAMINATION OF THE SOIL WHERE WELLS CAN BE DUG

94. The ascending veins of water issuing out of the nether regions spread in all directions; hence before digging a well a man should acquire the knowledge of these veins inside the earth.

95. If there be Vetasa trees in a waterless region, 3 cubits to the west of it, 6 cubits and 18 digits below the earth there will be found a vein of water flowing to the west.

96. If a yellow frog and yellow soil be found 2 cubits and 6 digits below the surface of the ground in the field, the bend of a river full of water is sure to be found even beneath hard rock (there).

97. If there be anthills to the east of and near a Blackberry tree, water is sure to be found 2 cubits and 6 digits beneath the surface of the ground there.

98. If fishbones, stones having the colour of pigeons, or blue soils are to be found 2 cubits and 6 digits beneath the surface of the ground somewhere, there beneath these things water is sure to continue long.

99. To the south of a Nirguṇḍa tree grown on soil covered with anthills, at a distance of 3 cubits, and 10 cubits and 3 digits beneath the ground, tasteful and undriable water is sure to be present.

100. If 2 cubits and 12 digits beneath the ground Rohita fish, yellow soil or thin sands and gravels are to be found successively, water beneath these is sure to be there.

101. If an anthill be found in the east of a place where a Vadarī tree is, and if a white lizzard is there 2 cubits and 2 digits below the ground, then water will certainly be found in the west (of that locality) 13½ cubits below the surface.

102. One is sure to find water 14 cubits and 15 digits below the ground in the west of a fruitful Vadarī tree towards the west of which if there are to be found signs of the existence of a cobra.

103. One is sure to find a vein of water moving to the west 14 cubits and 15 digits below the ground where there one finds anthill beneath a Kākodumbara tree.

104-105. One is sure to meet with water 6 cubits below the ground in the west of a place where there the ground is a little yellowish and the stone is of the colour of milk; and also where 2 cubits and 6 digits below the

ground one finds a white mouse, and very nearby an anthill in the south a Vibhītaka tree.

106. If an anthill is there in the west of this particular place one cubit away, then 20 cubits and 6 digits below the ground a vein of water moving to the north is sure to be found.

107. Where the white insect, named Viśvambharaka, is to be found 4 cubits below the ground as well as stone of mixed yellow and red colour, there a vein of water is to be found in the west of the place when the soil is dug out. But the vein will cease to exist three years after it has been found out.

108. Where an anthill is to be found between white Kuśa and Kovidāra trees, there 25 cubits towards the west one can find profusion of water 24 cubits and 18 digits below the surface.

109. Water is sure to be found below the ground of a soil where 4 cubits below the surface a serpent, soil having the colour of a lotus, and a kind of stone, named Kuruvindaka, are to be found.

110. Water is verily present 20 cubits and 6 digits beneath the ground where-ever a tree has a frog one cubit below the soil on which it is situated.

111. If there be the abode of a serpent towards the north of a Madhuka tree, then 5 cubits away towards the north and west of the place (on which the tree, is situated) 38 cubits and 6 digits below the ground, water is sure to be found.

112. The ground 4 cubits below which a king serpent, earth of ashy colour and stone of the colour of Kulattha are to be found, there a vein of water flowing to the east is to be found below the ground,—a vein the water of which is always full of foam.

113. Where there is the abode of a serpent towards south-west of a Kadamba tree, there towards the east, 3 cubits away, 27 cubits below the ground profusion of water is to be found.

114. Where there is to the west, 6 cubits away from the place (on which the tree is located) a palmyra, or a cocoanut tree is surrounded by anthills, 18 cubits beneath the ground a vein of water flowing to the west is sure to be found.

115. Where to the left of a Aśmāntaka tree, either a Vadarī tree or the abode of a serpent is to be found, there 6 cubits away towards the west 15 cubits and 18 digits below the ground water is to be found.

116. Where 4 cubits below the soil a tortoise, stone of ashy colour, and soil mixed with sand are to be found, there beneath the ground a vein of water flowing to the south is to be found too, and a little to the north east thereof another vein of water is to be found.

117. Where in a waterless (dreary) tract signs of watery region are

found, and where Virāṇa and Dūrvā are seen, there 4½ cubits below the ground water is to be found too.

118-119. If wet anthill is to be found beneath any of these trees: Tilaka, Āmrātaka, Varuṇaka, Bhallātaka, Vilva, Tinduka Añkola, Pindira, Śirīṣa, Añjana, Paruṣaka, Vañjula, Ativalā—then to the north thereof 3 cubits away 20 cubits and 6 digits below the ground there is water.

120. Where in the midst of a grassless ground a grassful spot is to be found, and vice versa, there is water below the surface.

121. If a thorny tree is to be found in the midst of a number of trees without thorns, then if one digs the ground there 3 cubits away to the west, one is sure to find water or riches 15 cubits below the soil.

122. If the branches of a tree are bent down or of yellow colour, then 13 and half cubits below the soil, under the top part of the branches water is sure to be found.

123. If earth and stone of yellow colour are to be found 18 cubits beneath the soil, lying 3 cubits away to the east of a tree which has developed signs of disease in its fruits and flowers—there water is to be found beneath its surface.

124. If a Kaṇṭakārī plant with flowers of white colour is found thornless, then 2 cubits 6 digits beneath the soil, or 13 cubits beneath thereof, water is to be found.

135. If in a waterless ground a date tree with 2 heads is to be found, then to the west of the ground, 13 cubits beneath the surface water is to be found.

126. If a Karṇikāra tree with white flowers, or a Palāśa tree is to be found, then to the north of the ground on which these are located, 15 cubits beneath the soil there is water.

127. The ground which is always warm, or out of which smoke seems to come out, 9 cubits beneath thereof a vein of water full of strong current is to be found.

128. The ground where the corn becomes of yellow colour while unripe and dies away, there 9 cubits beneath the soil a strong vein of water is to be found.

129-130. Then we are describing the signs of vein of water in the desert: If an anthill of yellowish colour is to be found in the north-east of a desert then in the west thereof 20 and half cubits below the ground a strong vein of water flowing to the west, which is like a hot spring, is to be found.

131. The soil where first a frog and then earth of yellow colour, and then 4½ cubits below heat is felt, there beneath the ground water is sure to be found,

132. The ground where a Vadarī tree is found adjacent to a Rohita

tree, there even in absence of an anthill 3 cubits away in the west and 94½ cubits below the ground water is to be found.

133. The ground where first a serpent is to be found 2 cubits and 6 digits below, then soil of white colour and then stone of the same colour, there in the north thereof a vein of water flowing to the south is to be found.

134. If a Karīra plant is to be found beneath a Vadarī tree, then 3 cubits away to the west, 81 cubits below the ground a vein of water flowing to north-east is to be found—a vein which is full of a profusion of water.

135. The desert where Kakuva and Karīra, or Kakuva and Vilva, trees are seen very near to one another, there in the west 3 cubits away, 94½ cubits below water is to be found,

136. If over an anthill grasses of yellow colour and Dūrvā are to be found, and one digs a well between the two then 189 cubits below the ground water is to be found.

137. Where an anthill is to be found to the north of a Śamī tree with knots (tubercles) all over its body, there 5 cubits away to the west, 225 curbits below the ground water is sure to be found.

138-139. Jambū, Trivṛtā, Śyāmā, Śiśumārī, Śārivā, Śivā, Dūrvā: all these gulmas; or such trees as Vārāhī, Jyotiṣmatī, Garuḍavegā, Śūkarikā Māṣalatā, Vyāghrapadā,—if any of these is to be found on stony ground, then 3 cubits north of the anthill adjacent thereto, 13½ cubits below the ground water is to be found.

140. The above rule (as laid down in 138-139,) applies to mountainous regions of Anūpa country, but in accordance with the spirit of this formula even in the mountainous grounds of Jāṅgala region water is to be found 30½ cubits below the surface, and in the case of a desert 36 cubits below.

141. Where the ground is uniformly even and is devoid of grasses, trees, anthills and shrubs, there if a change is noticed in any of these, water is sure to be found below the surface.

142. It is good to begin digging a well when the moon is in any of the constellation in the Zodiac: Hastā, Maghā, Anurādhā, Puṣyā, Dhaniṣṭhā, Uttaraphalguṇī, Uttarāṣāḍā, Uttarabhādrapada, Rohiṇī and Śatabhiṣā.

143. The presence of a well in the south-east of a house or a village is productive of perpetual fear, and causes the conflagration of houses, as if by a human agent.

144. A well in the south-west of a house or a village means loss of property to the inhabitants; one in north-west causes loss of wives, and one in the north-east causes fear. The digging of a well anywhere else is propitious.

145. The water below the surface of the ground which is full of Kāśa and Kuśa grass, or where the earth is of blue colour, or full of fine gravels,

or the earth is black and pungent to the taste, is sure to be both tasteful and sweet.

146. There where the earth is yellowish and full of gravels and pungent to the taste, the water below the surface is caustic; where the earth is of any colour other than pale the water below the surface is salty, and the water is sweet where the earth is of blue colour.

XI. HERE BEGINS THE SECTION CALLED POSHANAVIDHI—THE RULES FOR THE NOURISHMENT OF PLANTS

147. Trees do not produce fruits and flowers merely for being planted; hence we are going to state the rules relating to the nourishment of plants as framed by the Sages.

148. If one applies powdered oil-cakes of white mustard or sesamum at the root of Kharjjūra, Vilva and Lakuca trees,—all these three grow; and the mango tree grows if it is watered with water in which husks are soaked; Āirāvata and Nichulapatra grow by simple watering, but they grow also if watered with flesh and paddy washings.

149. For the (growth of) old Āmalaka trees the pulse māṣa is extremely beneficial; for young Tinduka trees application of water and milk is very helpful; powders of barley help the growth of cocoanut trees; and all trees rapidly grow if in the planes.

150. Mango trees bear very fragrant and sweet fruits at an early date if they are watered with decoction made up of miik, *pañcapallava*, i.e., leaves of mango, Aśvattha, Vata, Plakṣa and Yajñadumura, together with the fat of deer, boar, jackal, elephant, horse, etc.

151. A decoction made up of clarified butter, kuṇapa water, vacha, and pig's stool—is extremely favourable to the development of fruits of Dāḍima trees. And water or decoction made up of powders of kulattha is favourable to the roots of the same tree.

152. If one, after besmearing the trunk of a pomegranate tree with Saphari fish and powders of triphalā (fruits of Āmalaka, Haritakī and Bayeḍā), applies to its roots the powders of above three fruits and mango paste and also fumigates with frankincense, the fruit of the said tree is sure to be as large as the palmyra fruit.

153. If one waters a fruitful Kadamba or Nāgakeśara tree with the compound liquid made up of curd, fermented rice water, wine made out of rice, plum, sesamum, menthi, kuṇapa water, and wine prepared from sugar and milk, they are sure to bear innumerable fragrant flowers.

154. If one fills the trenches around a Nāgakeśara or Champaka tree with the decoction made up of priyaṅgu, gujña fruit, nimba, pippali, vacha, haridrā, tila and sarṣapa—all taken in equal parts together with clarified butter and broth of Aśvakarṇa (bark) they are sure to grow luxuriantly.

155. If one waters the roots of vines with the compound liquid made up of stools of fowls, (flesh and fish), straw and husks of paddy, it bears fruit and flowers and grows ; and if one compounds 6 maunds and 10 seers of Gāruḍi creepers with leaves and besmears the trunk of a jackfruit tree from top to foot with it and waters the roots of the said tree with the broth of vacha,—it bears fruits all over its body from head to foot.

156. If a Kapittha or Vilva tree be watered with clarified butter, milk and honey, it bears fruits which are sweet to the taste, full of fleshy substance containing scanty number of seeds.

157. A Madhuka tree puts on a beautiful and dignified appearance like a worshipable being when it is watered with the compound made up of the broth of the roots and leaves of Kośātakī, Pippala, kuṇapa water, and powdered resin.

158. A plum tree bears fruits which are as sweet as sugar when its roots are developed through being watered with the decoction of tila and yaṣṭimadhu and with kuṇapa water.

159. A Vījapura tree bears fruits again and again when the compound substance consisting of the stools of goat, sheep, pig, etc., viḍaṅga and the stools of men, is applied to the roots and then these roots are watered with the urine of horses and sheep.

160. All creepers are bent down under the weight of their fruits when their roots are pierced with the stings of scorpion and fumigated with clarified butter and watered with the fats of mice and pig.

161. A Ketakī tree if watered with the urine of cows and kuṇapa water in summer, bears fragrant flowers and sharp thorny leaves in the rainy season.

162. One should apply to the roots of all trees, in profusion, soil scented by fragrant flowers.

163. Any flowering tree bears fragrant flowers in course of a month if it be watered with the liquid compound of the powders of kuṣṭha, patra, murā, musta, tagara and uśīra.

164. If one applies to the roots of a lotus plant which is barren, the compounded dust of kulattha and the tusks of elephants, it is sure to be graced with sweet lotuses every day.

165. If one applies to the roots white mustard, plantain leaf, safari fish, stools of pig and cat in equal shares mixed with clarified butter, besmears the trunks and fumigate them therewith, they (trees) become free of all diseases,

grow luxuriously and the branches become graced with flowers and a number of bees.

166. A Śiśoo tree grows very luxuriantly if one, after fumigating it with barley, wine, fermented rice water and clarified butter, besmears its trunk with cakes made up of viḍaṅga and sesamum bathed either in milk or kuṇapa water.

167-168. All trees without exception always become graced with an abundance of fruits and leaves and flowers, become immune from diseases and afford pleasant shades if one applies to them the decoction of Añkola flower mixed with clarified butter and honey, fats of deer and boar added thereto powders of white mustard, and well watered.

169. One should make a paste of yaṣṭimadhu, Madhuka flowers, white kuṣṭḥa and honey, made them into pills and scatter them around the roots of all trees.

170. Any fruitful tree verily bears very sweet fruits if any experienced or wise man waters its roots with milk.

XII. HERE BGINS THE SECTION CALLED KUNAPA JALAM— THE NOURISHING SOLUTION

171-174. One should boil the flesh, fat and marrow of deer, pig, fish, sheep, goat and rhinoceros in water, and when it is properly boiled one should put the mixture in an earthen pot and add into the compound milk, powders of sesamum oil-cakes, māṣa (pulse) boiled in honey, the decoction of pulses, clarified butter and hot water. There is no fixity as to the amount of any of these elements ; when the said pot is put in a warm place for about a fortnight the compound becomes what is called Kuṇapa Water which is very healthy (for plants in general).

XIII. HERE BEGINS THE SECTION CALLED TARUCIKITSA— THE TREATMEFT OF PLANTS

175. Trees, like men, get diseases through the affections of *vāta* (wind), *pitta* (bile) and *kapha* (phlegm)—the three pathological humours. One should diognose the diseases through their symptoms and cure them radically.

176. When a tree is consumed by insects, burnt by fire, broken by storm, struck by thunderbolt,—one should cut away the affected parts ; but in case of diseases the operation is to be of a different nature.

177. Tall, thin, short, sleepless or partly conscious trees are of windy humour. They do not bear flowers and fruits.

178. Trees of billious temper cannot bear the rays of the sun, are of yellow colour, and shed their branches over and over again, and bear premature fruits.

179. Trees of phlegmatic temper have their branches and leaves very glossy, flowers and fruits well shaped and of good appearance, trunks symmetrical, and all parts covered with creepers.

180. Substances of pungent, bitter or caustic tastes are destructive of the windy humour of trees ; and those having bitter, hot, salty and acid juice are destructive of the bile, and those with graceful, sweet, acid or salty juice are destructive of the phlegm.

181. The affectations of windy humour is alleviated through the application of the graceful things like clarified butter mixed with flesh juice ; the affectation through the bile is alleviated through the application of things that are cold and graceful mixed with water, and the affectation through phlegm is mollified through the application of acid things mixed with hot water, or through pungent and bitter things.

182. Rudeness of appearance, tubercles (nodules over the body) both of large and small size are due to windy humour which may be overcome bp the application of Lodhra flower, cowdung, fats and kuṇapa water.

183. One should do well to realise that worms (kṛmayo) are at roots of plants affected with tubercles, or of plants for the paleness of buds and flowers of which no other particular cause can be assigned ; and one should do well to root out these worms with care. If now fresh urine of cows, clarified butter, viḍaṅga, mustard and sesamum are mixed together and applied to the trunk, then fumigated and watered with milk and water, they (these plants) grow.

184. All kinds of worms are destroyed if one applies to the roots of trees the barks of Karañja, Āragvada, Ariṣṭa, Saptaparṇa,—pasted in the urine of cows together with viḍaṅga and musta.

185. The bodies of trees burnt with fire when besmeared with lotus bulb pasted with kuṇapa water and milk, bear leaves as bright as marakata jewels.

186. One should besmear the branch of a tree broken by wind with the barks of Plakṣa, Arka and Udumbara trees pasted in ghee, honey and bees-wax mixed with milk ; should set it (the broken parts) as before, and tie it to a post fixed nearby, and apply finely powdered earth to the fractured part. And if it be sprinkled with milk over and over again, and (the plant) watered at the root, the tree gets round and produces abundance of flowers and fruits.

187-188. The treatment of trees struck by lightning is being given here : Ghana (musta) uśira, madhuka, mudga, māṣa, yava and tila pasted

with milk and water,—when applied to the roots of (such a tree, it is eased and becomes normal.

189. The trees which get at dotage through repeated production of fruits and flowers, when bathed (treated) in kuṇapa water and milk again and again, do surely bear fruit.

190. When the branches of a tree become dry owing to excess or want of application of water, one should boil viḍaṅga, clarified butter and milk together, and sprinkle the tree with the mixture for a week.

191. When a tree suffers from incapacity to digest water, it is alway pale, devoid of leaves, full of ants and the smell of fish, and in places devoid of barks. The following treatment has to be adopted in this case :

192-193. One should strike at the root of the tree suffering from indigestion to draw the poisonous sap out of the trunk, apply to the affected place a paste of honey, viḍaṅga powder and sesamum and cover it with earth and sprinkle it with water and milk. The atrophy (*sosha*) of a tree is radically cured if it be besmeared with the said paste after it has been sprinkled with sugar and sesamum mixed with milk and water and then fumigated.

194. Exudation of trees is stopped if one applies to it the barks of Priyaṅgū, Vara Karkārī, Vetasa and Arjuna pasted with and boiled in milk.

XIV. HERE BEGINS THE SECTION CALLED VICHITRA KARANAM—THE BOTANICAL MARVELS

195. The subject matter of the Vṛkṣāyurveda is not to be found anywhere outside the scriptures. Let us here deal with some botanical marvels.

196. If one applies to the root of a tree bearing scentless flowers, earth (soil) scented (through association) with fragrant flowers, and then sprinkle it with decoction of Dhava and Khadira barks, and besmears it with sandal dusts and then fumigates it with clarified butter and frankincense, it bears very fragrant flowers.

197. When one applies barley, sesamum, Niśā and powdered bark of Palāśa tree to the root of a cotton tree, and sprinkles it with the decoction made up of those things it yields fibres, as red as burning fire.

198. If barks of Śālmalī, turmeric, indigo, triphalā (three fruits), kuṣṭha and rock salt be powdered and mixed with wine, and be applied to the roots of a cotton tree, it yields fibres as yellow as the feather of a Śuka bird.

199. If mañjiṣṭhā, tila, yava, pītasāra, leaves of Jīvantī, powdered Manaḥśilā (a kind of red mineral) be pasted together in the milk either of she-goat, cow or of sheep, and applied to the root of a cotton tree it produces fibres as blue as the sky.

200. If the cut stem of a tree (cuttings) be besmeared with boiled sugar-cane juice, and sugar-cane juice be applied to its roots, it bears flowers out of season.

201. If sesamum oil-cakes, viḍaṅga, and cowdung, be applied to the root of a tree, and is sprinkled with sugar-cane juice, it produces flowers out of season which are very pleasing to all men.

202. If yaṣṭimadhu, sugar, kuṣṭha, flowers of Madhuka be pasted together and applied to the root of a tree it produces fruits without seeds within.

203. One should cut a big disc of bark from the trunk of a tree so as to make a hole fit enough for taking in medicine, fill it up with the flowers of Madhuka, Guñjā, śarkarā, ripe udumbara and honey, and then replace the said disc and besmear the affected parts with the dung of calves, bind it and apply to it any sweet liquid ; (if this is done) the tree is sure to bear stoneless fruits.

204. If the branches of a tree are well wrapped with the neck skins of goats recently killed its fruits never ripen.

205. If the root of a tree is pierced (injected) with the gullet of the monkey that has been rubbed with the exudation of an elephant, its fruits do not ripen within a year of the process.

206. If the branch of a tree is wrapped in straw and leather, and is pasted over with viḍaṅga, honey and milk, and if milk and water is sprinkled over it, it bears ripe fruits for a long time to come.

207. All kinds of seeds marvellously sprout and fructify when sprinkled with the decoction of fish, pig's flesh, fat and milk compounded together, and then fumigated.

208. If a seed is repeatedly bathed in oil extracted out of the Añkola fruit mixed with the fat of pig and porpoise, and then sown in earth and sprinkled over with spring water, it sprouts in no time.

209-210. The seeds of mango and other trees if bathed for a long time in a decoction of fish, viḍaṅga, Añkola oil, milk and clarified butter and then sown, the trees that sprout of them assume gigantic size. And if that seed is repeatedly rubbed with the ashes of cowdung,dried and sown, a fruitful tree which sprouts from it, becomes delightful to all.

211. If pomegranate seeds are treated 21 times in the blood of hen, within a short time trees sprout out of them and fructify (when sown).

212. The seeds, that are treated with the compound made up of fish, pig's fat, flesh and ashes of gram, when sown develop very soon into trees full of flowers and fruits.

213. The tree whose trunk is strongly pierced from all directions with bones of pig, never dries or perishes.

214. A tree becomes devoid of fruits and flowers if sprinkled over with the decoction made up of kulattha, or that made up of Palāśa, Arjuna and Tarkārī together with salt.

215. If bulbs are wrapped with fibres of water-lily, and their roots besmeared with honey and clarified butter variously coloured, and then sown, the flowers that grow out of them correspond to the colour of the clarified butter and honey.

216. If the seeds of water-lily are rubbed with the stools and urine of buffalo, dried for seven days and sown, out of them sprout Karavīra trees.

217. If the seeds of gourd, brinjal, patola and such other plants be treated with fat and then sown in purified (prepared) ground, and water be sprinkled over them, the fruits that grow out of them become big and seedless.

218. If one digs a deep pit and besmears the bottom of it with cowdung and sow in it the seeds of Brinjal rubbed with honey and ghee, dried in the sun and bathed in the juice of green gourd, the plants that grow out of them when developed bear abundant fruits.

219. If earth (soil) and cowdung and ghee compounded together be applied to the root of a gourd creeper coming out of the hole of a Mandār tree, it always bears fruits.

220. If Castor seeds be bathed in the fat and blood of pigs and treated in Añkola oil and sown, Kārañji fruits grow out of them, which is really a wonder.

221. If one thrusts a rod in the stool of ass and horse and then heat it on fire, and then pierce it slantingly into the trunk of a plantain tree, the fruits that tree will produce, will be as big as the trunk of an elephant.

222. If one sprinkles the infusion of the blood and fat of boar and Añkola oil over a plantain tree it bears pomegranate fruits.

223. When a plantain tree is sprinkled over with the flesh, fat and blood of man, and the powders of elephant's tusks dissolved in water it produces mango fruits.

224-225. If one applies to the root of a mango tree broth of human flesh and Añkola oil mixed with goat's milk and sesamum paste, it always bears fruits abunduntly like vines, which is certainly a wonderful thing.

226. If mango seeds be repeatedly treated in the blood of hare and tortoise, and if milk be sprinkled over the trees that grow out of them, they always bear fruits.

227. If one applies to the Nimba tree, which is naturally of bitter juice, the paste made up of viḍaṅga, yaṣṭimadhu, molasses and milk, and sprinkle it with water and milk, it produces sweet fruits.

228. Whatever seeds one sows after having treated them with human flesh and Añkola oil and with some earth in one's hand at the

time of sowing, and sprinkle some water over them, they always produce good fruits.

229. One should treat the bulbs of water-lily in Añkola oil, and keep it in cowdung for some time, and then put it in a water pot full of hail water and mud,—then flowers will surely come out of them.

230. One should purify (treat) a pit with burnt powders of the bone and dung of cow and pig, then fill the pit with sands and sow the seeds of radish in it, and the radish will be as big as the pit.

231. If one digs a pit in the ground with bricks all around, 4½ cubits deep, and plants a tree in it (pit), it (the tree) always remains dwarfish and bears flowers and fruits.

XV. HERE BEGINS THE SECTION CALLED ANNADINISHPATTI JNANA—THE ASCERTAINMENT OF THE PRICES AND GROWTH OF THINGS

232. One should do well to ascertain the cheapness of things as well as the growth of corns through observation of the growth of leaves, and flowers and fruits of trees.

233. One should predict the abundance of barley on seeing the luxurious growth of the leaves and flowers and fruits of Banyan trees, of that of Śāli rice through similar growth in Tinduka trees, and of all kinds of crops through similar growth in Aśvattha.

234. One should do well to predict the growth of Māṣa from the abundance of leaves, flowers and fruits of Jambū tree, of Mudga from abundunce of the same things in Śirīṣa tree, of Godhūma from Madhuka tree, and of Yava from Saptaparṇa tree.

235. One should predict the abundance of elephants from the abundance (of leaves, flowers and fruits) of Hastikarṇa tree, of horses from that of Aśvakarṇa, of cows from Pātalā trees, and of goats from plantain trees.

236. Growth of leaves, flowers and fruits in Mango trees indicates the prosperity of a country, that of Vallātaka trees indicates various causes of fear, that of Pīlu tree indicates relief from diseases and that of Khadira and Śamī trees forebodes famine, and that of Arjuna tree abundance of good rain.

237. Abundance of flowers of Pichumanda and Nāgakeśara trees indicates abundance of corns in a country, that of Kapittha means the chances of storm, that of Vetasa means fear of drought, and that of Kutaja fear of diseases.

APPENDIX

भद्रप्रदवृक्षाः ॥

श्रीभगवानुवाच ।

आश्रमे नारिकेलश्च गृहिणाञ्च धनप्रदः ।
शिविरस्य यदीशाने पूर्वे पुत्रप्रदस्तरुः ॥
सर्वत्र मङ्गलार्हश्च तरुराजो मनोहरः ।
रसालवृक्षः पूर्वस्मिन् नृणां सम्पत्प्रदस्तथा ॥
शुभप्रदश्च सर्वत्र सुरकारो निशामय ।
बिल्वश्च पनसश्चैव जम्बीरी वदरी तथा ॥
प्रजाप्रदश्च पूर्वस्मिन् दक्षिणे धनदस्तथा ।
सम्पत्प्रदश्च सर्वत्र यतो हि वर्द्धते गृही ।
जम्बूवृक्षश्च दाड़िम्बः कदल्याम्रातकस्तथा ॥
बन्धुप्रदश्च पूर्वस्मिन् दक्षिणे मित्रदस्तथा ।
सर्वत्र शुभदश्चैव धनपुत्रशुभप्रदः ॥
हर्षप्रदो गुवाकश्च दक्षिणे पश्चिमे तथा ।
ईशाने सुखदश्चैव सर्वत्रैवं निशामय ॥
सर्वत्र चम्पकः शुद्धो भुवि भद्रप्रदस्तथा ।
अलाबूश्चापि कुष्माण्डो मायाम्बुश्च सुकासुकः ॥
खर्ज्जूरी कर्कटी चापि शिविरे मङ्गलप्रदा ।
वास्तूकः कारविल्वश्च बार्त्ताकुश्च शुभप्रदा ।
लताफलञ्च शुभदं सर्वं सर्वत्र निश्चितम् ॥

निषिद्धवृक्षा यथा,—

प्रशस्तं कथितं कारो ! निषिद्धञ्च निशामय ।
वन्यवृक्षो निषिद्धश्च शिविरे नगरेऽपि च ॥
बटो निषिद्धः शिविरे नित्यं चौरभयं ततः ।
नगरेषु प्रसिद्धश्च दर्शनात् पुण्यदस्तथा ॥
हे कारो ! तिन्तिड़ीवृक्षो यत्नात्तं परिवर्जयेत् ।
शरणे धनहानिः स्यात् प्रजाहानिर्भवेद्ध्रुवम् ॥

शिविरेऽतिनिषिद्धश्च प्राज्ञस्तं परिवर्ज्जयेत् ।
खर्ज्जूरश्च उडुश्चैव निषिद्ध शिविरे तथा ॥
न निषिद्धः प्रसिद्धश्च ग्रामेषु नगरेषु च ।
वृक्षाश्च चम्पकादीनां धान्यश्च मङ्गलप्रदम् ॥
ग्रामेषु नगरे चापि शिविरे च तथैव च ।
इक्षुवृक्षश्च शुभदः सन्ततं शुभदस्तथा ॥
अशोकश्च शिरीषश्च कदम्बश्च शुभप्रदः ।
कच्वी हरिद्रा शुभदा शुभदश्चाद्रकस्तथा ॥
हरितकी च शुभदा ग्रामेषु नगरेषु च ।
न वात्यां भद्रता नित्यं तथा चामलकी ध्रुवम् ॥[1]
अपुत्रस्य च पुत्रत्यं पादपा इह कुर्वते ।
यत्नेनापि च राजेन्द्र ! अश्वत्थरोपणम् कुरु ॥
स ते पुत्रसहस्राणां कार्यमेकः करिष्यति ।
धनी चाश्वत्थवृक्षेण अशोकः शोकनाशनः ॥
प्लक्षो यज्ञप्रदः प्रोक्तो निम्बश्चायुप्रदः स्मृतः ।
जम्बुकी नाकदा प्रोक्ता भार्य्यादा दाड़िमी तथा ॥
डुम्बरो रोगनाशाय पलाशो ब्रह्मदस्तथा ।
अर्कपुष्पारोपकाणां नित्यं तुष्येद्दिवाकरः ॥
श्रीवृक्षः शङ्करो देवः पाटलायान्तु पार्वती ।
शिंशपायामप्सरसः कुन्दे गन्धर्वसत्तमाः ॥
विभीतके दासवृद्धिर्वकुलो दास्यदस्तथा ।
अपत्यनाशकस्तालो वकुलः कुलवर्द्धनः ॥
वहुभार्या नारिकेली द्राक्षः सर्वाङ्गसुन्दरः ।
रतिप्रदा तथा केली केतकी सर्वनाशिनी ।
प्रतिष्ठां ते गमिष्यन्ति ये नराः वृक्षरोपकाः ॥[2]

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1 ब्रह्मवैवर्त्ते श्रीकृष्ण जन्मखण्डे १०२ अध्यायः ।
Śabdakalpadruma, vol. 4, pp. 475-476, Radhakanta Deb edition, Calcutta, Śakābda 1814.

2 पद्मपुराणे सृष्टिखण्डे वृक्षारोपणम् नाम २६ अध्यायः ।

वृक्षस्य रोपणफलम् ।

यम उवाच ।

यः पुमान् रोपयेद्वृक्षान् छायापुष्पफलोपगान् ।
सर्व्वसत्त्वोपभोगाय स याति परमां गतिम् ॥
छायापुष्पोपगांस्त्रिंशत् फलपुष्पद्रुमांस्तथा ।
रोपयित्वा दशाम्रांस्तु नरो न नरकं व्रजेत् ॥
देवदानवगन्धर्व्वाः किन्नरोरगगुह्यकाः ।
पशुपक्षिमनुष्याश्च संश्रयन्ति मुदा द्रुमान् ॥
पुष्पैः सुरगणाः सर्व्वे फलैश्च पितरः सदा ।
छायया मे मनुष्यास्तु पशुपक्षिमृगास्तथा ॥
पुष्पोपगन्धांश्च फलोपगन्धान्
यः पादपान्रोपयते मनुष्यः ।
समृद्धदेशे वरवेश्मवेद्यां
लभेदधिष्ठानवरं स विप्रः ॥
तस्मात् सुबहवो वृक्षा रोप्याः श्रेयोऽभिवाञ्छता ।
पुत्रवत् परिपाल्याश्च ते पुत्रा धर्म्मतः स्मृताः ॥
किं धर्म्मविमुखैर्म्मर्त्यैः केवलं स्वार्थहेतुभिः ।
तरुपुत्रा वरं ये तु परार्थैकानुवृत्तयः ॥
पत्रपुष्पफलछायामूलवल्कल दारुभिः ।
परेषामुपकुर्व्वन्ति तारयन्ति पितामहान् ॥
छेत्तारमपि संप्राप्तं छायापुष्पफलादिभिः ।
पूजयन्त्येव तरवो मुनिवद्द्वेषवर्ज्जिताः ॥
पितरं नोपहिंसन्ति द्रुमा द्रविणलोभतः ।
तारयन्ति च मे सम्यक् सर्व्वस्यातिथ्यदायकाः ॥
तस्मात्ते पुत्रवत् स्थाप्या विधिवद्द्विजपुङ्गवः ।
द्विजैः पितृमनुष्याणामभोज्याः स्युर्यदा सदा ॥
जलकृत् वृक्षरोपी यः प्रतिग्राहारुचिर्द्विजः ।
एते स्वर्गान्न हीयन्ते ये चान्ये सत्यवादिनः ॥[1]

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1 अग्निपुराणे तडागवृक्षप्रशंसानामाध्यायः ।

भूमि दानेन ये लोका गोदानेन च कीर्त्तिताः ।
ते लोकाः प्राप्यते पुंभिः पादपाणां प्ररोहणे ॥

अश्वत्थमेकं पिचुमर्द्दमेकं
न्यग्रोधमेकं दश पुष्पजातीः ।
द्वे द्वे तथा दाड़िममातुलुङ्गे
पञ्चाम्ररोपी नरकं न याति ॥
यथा सुपुत्रः कुलमुद्धरेद्धि
यथातिकृत्स्नान्नियमप्रयत्नात् ।
तथात्र वृक्षाः फलपुष्पभूताः
स्वं स्वामिनं नरकादुद्धरन्ति ॥

गोकर्ण उवाच ।

इन्धनार्थं यथा नीतमग्निहोत्रं तदुच्यते ॥
छाया विश्राम पथिकैः पक्षिणां निलयेन च ।
पत्रमूलत्वगादींश्च औषधार्थन्तु देहिनाम् ॥
उपकुर्व्वन्ति वृक्षस्य पञ्चयज्ञः स उच्यते ।
गृहकृत्यानि कष्ठानि क्षुद्रजन्तुगृहस्तथा ॥
सत्रनिर्व्वर्त्तनं प्रोक्तं भिक्षा पत्रैः समाकृता ।
फलन्ति वत्सरे मध्ये द्विवारं शाकुनादयः ॥
सांवत्सरं पितुर्मातुरुपकारं फलै कृतम् ।
एवं पुत्र समारोप्या एवं तत्त्वविदो विदुः ॥

अच्छेद्य वृक्षा यथा,—
अश्वत्थो वटवृक्षश्च न च्छेत्तव्यः कदाचन ।
न च्छेत्तव्यो विल्ववृक्ष उडुम्बरश्च कदाचन ।
कर्म्मण्याश्चैव ये वृक्षा न च्छेत्तव्याः कदाचन ॥[1]

वृक्षच्छेदने दोषः ।

तस्मान्न च्छेदयेत् वृक्षान् सुपुष्पफलितान् कदा ।
यदीच्छेत् कुलवृद्धिञ्च धनवृद्धिञ्च शाश्वतीम् ॥

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1 वाराहपुराणे गोकर्णमाहात्म्यानामाध्याय

सन्निधौ देवतानाञ्च शिलेष्टकचितानपि ।
छेदिताश्छेदयेल्लोकान् मरकवृष्टिस्तु द्रुमैः ॥
नृपहानिर्भवेच्छीघ्रं चिञ्चावृक्षे निपातिते ।
सन्नियोगी हयं याति सीमावृक्षे निपातिते ।
तस्मान्न च्छेदयेद् वृक्षं देवताधिष्ठितं क्वचित् ॥
वापीकूपतड़ागानां छेदने रोधने कृते ।
कुलान्यकुलतां यान्ति नराणां सुदुरात्मनाम् ॥
तद्वंश्च छेदयेद्यस्तु वृक्षान् छाया सुशीतलान् ।
असिपत्रबने घोरे पीड्यते यमकिङ्करैः ॥
नगरोपबने वृक्षान् प्रमादाद्धि च्छिनत्ति यः ।
स गच्छेन्नरकं नाम जुम्भणं रौद्रदर्शनम् ॥
बिल्वादिपालनं कुर्य्याच्छुभं भयदमन्यथा ।
श्रीवृक्षान्नोपयेत् पञ्च यदि स्वर्गान्न हीयते ॥[1]
वृक्षस्तु सफलं छित्त्वा सुबर्णं दण्डमर्हति ।
द्विगुणं दन्डयेच्चैनं पथिसीम्निजलाशये ॥
छेदनादफलस्यापि मध्यमं साहसं स्मृतम् ।
गुल्मबल्लीलतानाञ्च सुबर्णस्य च माषकम् ॥
वृक्षच्छेदी तृणस्यापि दण्ड्यः कार्षापणं भवेत् ।
त्रिभागं कृष्णला दण्ड्याः प्राणिनस्ताड़ने तथा ॥
देशकालानुरूपेन मूल्यं राजा द्रुमादिषु ।
तत् स्वामिनस्तथा दण्ड्या दण्डमुक्तस्तु पार्थिवः ॥[2]

वृहत् संहिता । ५३ ॥[3]

अथ दकार्गलं व्याख्यायते ।

धर्म्म्यं यशस्यञ्च बदाम्यतोऽहं दकार्गलं येन जलोपलब्धिः ।
पुंसां यथाङ्गेषु शिरास्तथैव क्षितावपि प्रोन्नतनिम्नसंस्थाः ॥ १

1 अग्निपुराणे वारुणारामप्रतिष्ठाध्यायः ।

2 मत्स्यपुराणे २२७ अध्यायः ।

3 Vol. II, pp. 706-742. The Vizianagram Sanskrit Series. Vol. X, Benares, 1895-1897. Additional texts in the footnote are quoted from the Commentary.

एकेन वर्णेन रसेन चाम्भश्च्युतं नभस्तो वसुधाविशेषात् ।
नानारसत्वं बहुवर्णताञ्च गतं परीक्ष्यं क्षितितुल्य मैव ॥ २[1]

पुरुहूतानलयमनिऋ्र्तिवरुणपवनेन्दुशङ्करा देवाः ।
विज्ञातव्याः क्रमशः प्राच्यादीनां दिशां पतयः ॥ ३

दिक्पतिसंज्ञाश्च शिरा नवमी मध्ये महाशिरानाम्नी ।
एताभ्योऽन्याः शतशो विनिःसृता नामभिः प्रथिताः ॥ ४

पातालादूर्द्ध्वशिराः शुभाश्चतुर्द्दिक्षु संस्थितायाश्च ।
कोणे दिगुत्था न शुभाः शिरानिमित्तान्यतो वक्ष्ये ॥ ५

यदि वेतसोऽम्बुरहिते देशे हस्तैस्त्रिभिस्ततः पश्चात् ।
सार्द्धे पुरुषे तोयं बहति शिरा पश्चिमा तत्र ॥ ६

चिह्नमपि चार्द्धपुरुषे मण्डूकः पाण्डुरोऽथ मृत् पीता ।
पुटभेदकश्च तस्मिन् पाषाणो भवति तोयमधः ॥ ७[2]

जम्बाश्चोदग्ध्यस्तैस्त्रिभिः शिराधो नरद्वये पूर्ब्वा ।
मृल्लोहगन्धिका पाण्डुराथ पुरुषेऽत्र मण्डूकः ॥ ८

जम्बूवृक्षस्य प्राग् वल्मीको यदि भवेत् समीपस्थः ।
तस्माद्दक्षिणपार्श्वे सलिलं पुरुषद्वये स्वादु ॥ ९

अर्द्धपुरुषे च मत्स्यः पारावतसन्निभश्च पाषाणः ।
मृद्भवति चात्र नीला दीर्घकालं बहु च तोयम् ॥ १०[3]

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1 तथा च भट्टोत्पल—सशर्करा ताम्रमही कषायं क्षारं धरित्री कपिला करोति ।
आपाण्डुरायां लवणं प्रदिष्टमिष्टं पयो नीलवसुन्धरायाम् ॥

2 तथा च सारस्वतः—निर्जले वेतसं दृष्ट्वा तस्माद्धस्तादपि त्रयम् ।
पश्चिमायां दिशि ज्ञेयमधः सार्धेन वै जलम् ॥
नरोऽत्र षष्टिर्द्विगुणा चाङ्गुलानां प्रकीर्त्तितः ।
तत्र खात्वाऽर्धपुरुषं भेकः पाण्डुरवर्णकः ॥
मृत् पीता पुटभेदश्च पाषाणोऽधस्ततो जलम् ।
शिरा पश्चिमदिक्स्थात्र वहतीति विनिर्दिशेत् ॥

3 तथा च सारस्वतः—जम्बूवृक्षात् पूर्वभागे वल्मीको यदि दृश्यते
तरोर्दक्षिणतो हस्तांस्त्रींस्त्यक्त्वाऽधो जलं वदेत् ॥
नरद्वयेऽर्धपुरुषे मत्स्योऽश्मा पक्षिसन्निभः ।
ततोऽपि मृत्तिका नीला ततो मृष्टं जलं वदेत् ॥

पश्चादुदुम्बरस्य त्रिभिरेव करैर्नरद्वये सार्द्धे ।
पुरुषे सितोऽहिरश्माञ्जनोपमोऽधः शिरा सुजला ॥११
उदगर्ज्जुनस्य दृश्यो वल्मीको यदि ततोऽर्ज्जुनाद्धस्तैः ।
त्रिभिरम्बु भवति पुरुषैस्त्रिभिरर्द्धसमन्वितैः पश्चात् ॥१२
श्वेता गोधार्द्धनरे पुरुषे मृद्धूसरा ततः कृष्णा ।
पीता सिता ससिकता ततो जलं निर्द्दिशेदसितम् ॥१३
वल्मीकोपचितायां निर्गुण्ड्यां दक्षिणेन कथितकरैः ।
पुरुषद्वये सपादे स्वादुजलं भवति चाशोष्यम् ॥१४
रोहितमत्स्योऽर्द्धनरे मृत्कपिला पाण्डुरा ततः परतः ।
सिकता सशर्कराथ क्रमेण परतो भवत्यम्भः ॥१५
पूर्वेण यदि वदर्या वल्मीको दृश्यते जलं पश्चात् ।
पुरुषैस्त्रिभिरादेश्यं श्वेता गृहगोधिकार्द्धनरे ॥१६[1]
सपलाशा वदरी चेद् दिश्यपरस्यां ततो जलं भवति ।
पुरुषत्रये सपादे पुरुषेऽत्र च दुण्डुभिश्चिह्नम् ॥१७[2]
विल्वोदुम्बरयोगे विहाय हस्तत्रयं तु याम्येन ।
पुरुषैस्त्रिभिरम्बु भवेत् कृष्णोऽर्द्धनरे च मण्डूकः ॥१८
काकोदुम्बरिकायां वल्मीको दृश्यते शिरा तस्मिन् ।
पुरुषत्रये सपादे पश्चिमदिक्स्था वहति सा च ॥१९
आपाण्डुपीतिका मृद् गोरसवर्णश्च भवति पाषाणः ।
पुरुषार्द्धे कुमुदनिभो दृष्टिपथं मूषको याति ॥२०
जलपरिहीने देशे वृक्षः कम्पिल्लको यदा दृश्यः ।
प्राच्यां हस्तत्रितये वहति शिरा दक्षिणा प्रथमम् ॥२१

1 तथा च सारस्वत:—पूर्वभागं वदर्याश्च वल्मीको दृश्यते जलम् ।
पश्चाद्धस्तत्रये वाच्यं खाते तु पुरुषत्रये ॥
अध:खातेऽर्धपुरुषे दृश्यते गृहगोधिका ।
श्वेतवर्णा ततोऽध:स्थं जलं भवति निर्मलम् ॥

2 ,, ,, ,, पलाशयुक्ता वदरी यत्र दृश्या ततोऽपरे ।
हस्तत्रयादधस्तोयं सपादे पुरुषत्रये ॥
नरे तु दुण्डुभ: सर्पो निर्विषश्चिह्नमेव च ।
अधस्तोयं च सुस्वादु दीर्घकालं प्रवाहितम् ॥

मृन्नीलोत्पलवर्णा कापोता चैव दृश्यते तस्मिन् ।
हस्तेऽजगन्धिमत्स्यो भवति पयोऽल्पश्च सक्षारम् ॥ २२[1]
शोणाकतरोरपरोत्तरे शिरा द्वौ करावतिक्रम्य ।
कुमुदा नाम शिरा सा पुरुषत्रयवाहिनी भवति ॥ २३
आसन्नो वल्मीको दक्षिणपार्श्वे विभीतकस्य यदि ।
अध्यर्द्धे तस्य शिरा पुरुषे ज्ञेया दिशि प्राच्याम् ॥ २४
तस्यैव पश्चिमायां दिशि वल्मीको यदा भवेद्धस्ते ।
तत्रोदग् भवति शिरा चतुर्भिरर्द्धाधिकैः पुरुषैः ॥ २५
श्वेतो विश्वम्भरकः प्रथमे पुरुषे तु कुङ्कुमाभोऽश्मा ।
अपरस्यां दिशि च शिरा नश्यति वर्षत्रयेऽतीते ॥ २६
सकुशासित पैशान्यां वल्मीको यत्र कोविदारस्य ।
मध्ये तयोर्नरैरर्द्धपञ्चमैस्तोयमक्षोभ्यम् ॥ २७
प्रथमे पुरुषे भुजगः कमलोदरसन्निभो मही रक्ता ।
कुरुविन्दः पाषाणश्चिह्नान्येतानि वाच्यानि ॥ २८
यदि भवति सप्तपर्णो वल्मीकवृतस्तदुत्तरे तोयम् ।
वाच्यं पुरुषैः पञ्चभिरत्रापि भवन्ति चिह्नानि ॥ २९
पुरुषार्द्धे मण्डूको हरितो हरितालसन्निभा भूश्च ।
पाषाणोऽभ्रनिकाशः सौम्या च शिरा शुभाम्बुवहा ॥ ३०[3]

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1 तथा च सारस्वत:—निर्जले यत्र कम्पिल्लो दृश्यस्तस्मात् करत्रये ।
प्राच्यां त्रिभिर्नरैर्वारि सा भवेद्दक्षिणा शिरा ॥
अधो नीलोत्पलाभासा मृत् कापोतप्रभा क्रमात् ।
हस्तेऽजगन्धको मत्स्यो जलमल्पमशोभनम् ॥

2 „ „ „ विभीतकस्य याम्यायां वल्मीको यदि दृश्यते ।
करद्वयान्तरे पूर्व्वे सार्द्धे च पुरुषे जलम् ॥

3 तथा च सारस्वत:—भुजङ्गगृहसंयुक्तो यत्र स्यात् सप्तपर्णक: ।
तत: सौम्ये हस्तमात्रात् पञ्चभि: पुरुषैरध: ॥
वाच्यं जलं नरार्द्धे तु मण्डूको हरितो भवेत् ।
हरितालनिभा भूश्च मेघाभोऽश्मा तत: शिरा ।
उत्तरा सुजला ज्ञेया दीर्घा मृष्टाम्बु वाहिनी ॥

सर्ब्बेषां वृक्षाणामधःस्थितो दर्दूरो यदा दृश्यः ।
तस्माद्धस्ते तोयं चतुर्भिरर्द्धाधिकैः पुरुषैः ॥ ३१

पुरुषे तु भवति नकूलो नीला मृत् पीतिका ततः श्वेता ।
दर्दूरसमानरूपः पाषाणो दृश्यते चात्र ॥ ३२[1]

यद्यहिनिलयो दृश्यो दक्षिणतः संस्थितः करञ्जस्य ।
हस्तद्वये तु याम्ये पुरुषत्रितये शिरा सार्द्धे ॥ ३३

कच्छपकः पुरुषार्द्धे प्रथमं चोद्भिद्यते शिरा पूर्ब्बा ।
उदगन्या स्वादुजला हरितोऽश्माधस्ततस्तोयम् ॥ ३४

उत्तरतश्च मधूकादहिनिलयः पश्चिमे तरोस्तोयम् ।
परिहृत्य पञ्चहस्तान् अर्द्धाष्टमपौरुषे प्रथमम् ॥ ३५

अहिराजः पुरुषेऽस्मिन् धूम्रा धात्री कुलत्थवर्णोऽश्मा ।
माहेन्द्री भवति शिरा वहति सफनं सदा तोयम् ॥ ३६

वल्मीकः स्निग्धो दक्षिणेन तिलकस्य सकुशदूर्व्वश्चेत् ।
पुरुषै पञ्चभिरम्भो दिशि वारुण्यां शिरा पूर्व्वा ॥ ३७[2]

सर्पावासः पश्चाद् यदा कदम्बस्य दक्षिणेन जलम् ।
परतो हस्तत्रितयात् षड्भिः पुरुषैस्तुरीयोनैः ॥ ३८

कौवेरी चात्र शिरा बहति जलं लोहगन्धिः चात्तोभ्यम् ।
कनकनिभो मण्डूको नरमात्रे मृत्तिका पीता ॥ ३९

वल्मीकसंवृतो यदि तालो बा भवति नालिकेरः ।
पश्चात् षड्भिर्हस्तैर्नरैश्चतुर्भिः शिरा याम्या ॥ ४०

याम्येन कपित्थस्याहिसंश्रयश्चेदुदग्जलं वाच्यम् ।
सप्त परित्यज्य करान् खात्वा पुरुषान् जलं पञ्च ॥ ४१

तथा च सारस्वत:—तरूणां यत्र सर्वेषामधःस्थो दर्दुरो भवेत् ।
वृक्षाद्दुदग्दिशि जलं हस्तात् सार्द्धैर्नरैरधः ॥
चतुर्भिः पुरुषे खाते नकुलो नीलमृत्तिका ।
पीतश्वेता ततो भेकसदृशोऽश्मा प्रदृश्यते ॥

" " " —तिलकाद्दक्षिणे स्निग्धे: कुशदूर्वासमायुतः ।
वल्मीकाच्चोत्तरे पञ्च हस्तान् सन्त्यज्य पश्चिमे ।
नरैः पञ्चभिरम्भोऽधः शिरा पूर्वात्र विद्यते ॥

कर्बूरकोऽहिः पुरुषे कृष्णा मृत्पुटभिदपि च पाषाणः ।
श्वेता मृत् पश्चिमतः शिरा ततश्चोत्तरा भवति ॥ ४२
अश्मन्तकस्य वामे वदरी वा दृश्यतेऽहिनिलयो वा ।
षड्भिरुदक् तस्य करैः सार्द्धे पुरुषत्रये तोयम् ॥ ४३
कूर्म्मः प्रथमे पुरुषे पाषाणो धूसरः ससिकता मृत् ।
आदौ शिरा च याम्या पूर्व्वोत्तरतो द्वितीया च ॥ ४४
वामेन हरिद्रतरोर्व्वल्मीकश्चेत्ततो जलं पूर्व्वे ।
हस्तत्रितये पुरुषैः सत्र्यंशै पञ्चभिर्भवति ॥ ४५
नीलो भुजगः पुरुषे मृत् पीता मरकतोपमश्चाश्मा ।
कृष्णा भूः प्रथमं वारुणी शिरा दक्षिणेनान्या ॥ ४६
जलपरिहीने देशे दृश्यन्तेऽनूपजानि चिह्नानि ।
वीरणदूर्व्वा मृदवश्च यत्र तस्मिन् जलं पुरुषे ॥ ४७
भार्गी त्रिवृता दन्ती शूकरपादी च लक्ष्मणा चैव ।
नवमालिका च हस्तद्वयेऽम्बु याम्ये त्रिभिः पुरुषैः ॥ ४८
स्निग्धाः प्रलम्बशाखा वामनविटपद्रुमाः समीपजलाः ।
सुषिरा जर्ज्जरपत्रा रूक्षाश्च जलेन सन्त्यक्ताः ॥ ४९
तिलकाम्रातकवरुणकभल्लातकविल्वतिन्दुकाङ्कोलाः ।
पिण्डारशिरीषाञ्जनपरूषका वञ्जुलोऽतिवला ॥ ५०
एते यदि सुस्निग्धा वल्मीकैः परिवृतास्ततस्तोयम् ।
हस्तैस्त्रिभिरुत्तरतश्चतुर्भिरर्द्धेण च नरस्य ॥ ५१
अतृणे सतृणा यस्मिन् सतृणे तृणवर्ज्जिता मही यत्र ।
तस्मिन् शिरा प्रदिष्टा वक्तव्यं वा धनं तस्मिन् ॥ ५२
कण्टक्यकण्टकानां व्यत्यासेऽम्भस्त्रिभिः करैः पश्चात् ।
खात्वा पुरुषत्रितयं त्रिभागयुक्तं धनं वा स्यात् ॥ ५३
नदति मही गम्भीरं यस्मिंश्चरणाहता जलं तस्मिन ।
सार्द्धैस्त्रिभिर्म्मनुष्यैः कौवेरी तत्र च शिरा स्यात् ॥ ५४
वृक्षस्यैका शाखा यदि विनता भवति पाण्डुरा वा स्यात् ।
विज्ञातव्यं शाखातले जलं त्रिपुरुषं खात्वा ॥ ५५
फलकुसुमविकारो यस्य तस्य पूर्व्वे शिरा त्रिभिर्हस्तैः ।
भवति पुरुषैश्चतुर्भिः पाषाणोऽधःक्षितिः पीता ॥ ५६

यदि कण्टकारिका कण्टकैर्विना दृश्यते सितैः कुसुमैः ।
तस्यास्तलेऽम्बु वाच्यं त्रिभिनरैरर्द्धपुरुषे च ॥ ५७
खर्ज्जूरी द्विशिरस्का यत्र भवेज्जलविवर्ज्जिते देशे ।
तस्याः पश्चिमभागे निर्द्देश्यं त्रिपुरुषे वारि ॥ ५८[1]
यदि भवति कर्णिकारः सितकुसुमः स्यात् पलाशवृक्षो वा ।
सव्येन तत्र हस्तद्वयेऽम्बु पुरुषत्रये भवति ॥ ५९
उष्मा यस्यां धात्र्यां धूमो वा तत्र वारि नरयुग्मे ।
निर्द्दिष्टव्या च शिरा महता तोयप्रवाहेण ॥ ६०
यस्मिन क्षेत्रोद्देशे जातं शस्यं विनाशमुपयाति ।
स्निग्धमतिपाण्डुरं वा महाशिरा नरयुग्मे तत्र ॥६१
मरुदेशे भवति शिरा यथा तथातःपरं प्रवक्ष्यामि ।
ग्रीवा करभाणामिव भूतलसंस्थाः शिरा यान्ति ॥ ६२
पूर्व्वोत्तरेण पीलोर्यदि वल्मीको जलं भवति पश्चात् ।
उत्तरगमना च शिरा विज्ञेया पञ्चभिः पुरुषैः ॥ ६३
चिह्नं दर्दुर आदौ मृत्कपिलातःपरं भवेद्धरिता ।
भवति च पुरुषेऽधोऽश्मा तस्य तले वारि निर्द्देश्यम् ॥ ६४[2]
पीलोरेव प्राच्यां वल्मीकोऽतोऽर्धपञ्चमैर्हस्तैः ।
दिशि याम्यायां तोयं वक्तव्यं सप्तभिः पुरुषैः ॥ ६५
प्रथमे पुरुषे भुजगः सितासितो हस्तमात्रमूर्त्तिश्च ।
दक्षिणतो वहति शिरा सक्षारं भूरिपानीयम् ॥ ६६
उत्तरतश्च करीरादहिनिलये दक्षिणे जलं स्वादु ।
दशभिः पुरुषैर्ज्ञेयं पुरुषे पीतोऽत्र मण्डूकः ॥ ६७[3]

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1 तथा च सारस्वतः—खर्ज्जूरी द्विशिरस्का स्यान्निर्जले चेत् करद्वये ।
निर्द्देश्यं पश्चिमे वारि खात्वाऽधः पुरुषत्रयम् ॥

2 तथा च सारस्वतः—ऐशान्यां पीलुवृक्षस्य वल्मीकश्चेजलं वदेत् ।
चतुर्भिः सरलैर्हस्तैः पश्चिमे नर पञ्चमे ॥
प्रथमे पुरुषे भेकः कपिला हरिता च मृत् ।
पाषाणस्य तले सौम्यां शिरां वहुजलां वदेत् ॥

3 ,, ,, ,, उदक्करीराद्वल्मीको दृश्यते चेज्जलं वदेत् ।

रोहीतकस्य पश्चादहिवासश्चेत्त्रिभिः करैर्याम्ये ।
द्वादशपुरुषान् खात्वा सक्षारा पश्चिमेन शिरा ॥ ६८

इन्द्रतरोर्वल्मीकः प्रागदृश्यः पश्चिमे शिरा हस्ते ।
खात्वा चतुर्द्दशनरान कपिला गोधा नरे प्रथमे ॥ ६९

यदि वा सुवर्णनाम्नस्तरोर्भवेद्वामतो भुजङ्गगृहम् ।
हस्तद्वये तु याम्ये पञ्चदशनरावसानेऽम्बु ॥ ७०

क्षारं पयोऽत्र नकुलोऽर्द्धमानवे ताम्रसन्निभश्चाश्मा ।
रक्ता च भवति वसुधा वहति शिरा दक्षिणा तत्र ॥ ७१

वदरीरोहितवृक्षौ संपृक्तौ चेद्विनापि वल्मीकम् ।
हस्तत्रयेऽम्बु पश्चात् षोड़शभिर्म्मानवैर्भवति ॥ ७२

सुरसं जलमादौ दक्षिणा शिरा वहति चोत्तरेणान्या ।
पिष्टनिभः पाषाणो मृच्छ्वेता वृश्चिकोऽर्द्धनरे ॥ ७३

सकरीरा चेद्वदरी त्रिभिः करैः पश्चिमेन तत्राम्भः ।
अष्टादशभिः पुरुषैरैशानो वहुजला च शिरा ॥ ७४

पीलुसमेता वदरी हस्तत्रयसम्मिते दिशि प्राच्याम् ।
विंशत्या पुरुषाणामशोष्यमम्भोऽत्र सक्षारम् ॥ ७५

ककुभकरीरावेकत्र संयुतौ यत्र ककुभविल्वौ वा ।
हस्तद्वयेऽम्बु पश्चान्नरैर्भवेत् पञ्चविंशत्या ॥ ७६

वल्मीकमूर्द्धनि यदा दूर्व्वा च कुशाश्च पाण्डुराः सन्ति ।
कूपो मध्ये देयो जलमत्र नरैकविंशत्या ॥ ७७

भूमीः कदम्बकयुता वल्मीके यत्र दृश्यते दूर्व्वा ।
हस्तत्रयेण याम्ये नरैर्ज्जलं पञ्चविंशत्या ॥ ७८

वल्मीकत्रयमध्ये रोहितकपादपो यदा भवति ।
नानावृक्षैः सहितस्त्रिभिर्ज्जलं तत्र व्यक्तव्यम् ॥ ७९

हस्तचतुष्के मध्यात् षोड़शभिश्चाङ्गुलैरुदग्वारि ।
चत्वारिंशत् पुरुषान् खात्वाश्मातः शिरा भवति ॥ ८०

चतुर्भिर्दक्षिणैर्हस्तैः सार्धैर्दशनरादतः ।
नरे भेकः पीतवर्णो दृश्यते चिह्नमत्र हि ॥

ग्रन्थिप्रचुरा यस्मिंश्छमी भवेदुत्तरेण वल्मीकः ।
पश्चात् पञ्चकरान्ते शतार्द्धसं ङ्ख्यैः सलिलम् ॥ ८१
एकस्थाः पञ्च यदा वल्मीका मध्यमो भवेच्छ्वेतः ।
तस्मिन् शिरा प्रदिष्टा नरषष्ट्या पञ्चवर्जितया ॥ ८२
सपलाशा यत्र शमी पश्चिमभागेऽम्बु मानबैः षष्ट्या ।
अर्द्धनरेऽहिः प्रथमं सवालुका पीतमृत् परतः ॥ ८३[1]
वल्मीकेन परिवृतः श्वेतो रोहीतको भवेद् यस्मिन् ।
पूर्व्वेन हस्तमात्रे सप्तत्या मानवैरम्बु ॥ ८४
श्वेता कण्टकवहुला यत्र शमी दक्षिणेन तत्र पयः ।
नरपञ्चकसंयुतया सप्तत्याहिर्नरार्द्धे च ॥ ८५[2]
मरुदेशे यच्चिह्नं न जाङ्गले तैर्ज्जलं विनिर्द्देश्यम् ।
जम्बूवेतस पूर्व्वे ये पुरुषास्ते मरौ द्विगुणाः ॥ ८६
जम्बूस्त्रिवृता मूर्व्वा शिशुमारी सारिवा शिवा श्यामा ।
वीरुधयो वाराही ज्योतिष्मती च गरुड़वेगा ॥ ८७
शूकरिकमाषपर्णी व्याघ्रपदाश्चेति यद्यहेर्निलये ।
वल्मीकादुत्तरतस्त्रिभिः करैस्त्रिपुरुषे तोयम् ॥ ८८
एतदानूपे वाच्यं जाङ्गलभूमौ तु पञ्चभि पुरुषैः ।
एतैरेव निमित्तैर्म्मरुदेशे सप्तभिः कथयेत् ॥ ८९
एकनिभा यत्र मही तृणतरुवल्मीकगुल्मपरिहीना ।
तस्यां यत्र विकारो भवति धरित्र्यां जलं तत्र ॥ ९०
यत्र स्निग्धा निम्ना सवालुका सानुनादिनी वा स्यात् ।
तत्रार्द्ध पञ्चमैर्व्वारि मानवैः पञ्चभिर्यदि वा ॥ ९१

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1 तथा च सारस्वतः—शमी पलाशसंयुक्ता यत्र स्यात् तत्र पश्चिमे ।
पञ्चहस्ताज्जलं वाच्यं षष्ट्याच पुरुषैरधः ॥
अत्रार्धपुरुषे सर्पः पीता मृत् स्यात् सवालुका ।
तदधोऽम्भो विनिर्देश्यं दीर्घकालं प्रवाहितम् ॥

2 ,, ,, ,, —श्वेतातिकण्टका यत्र शमी स्यात् तत्र दक्षिणे ।
हस्तेन पञ्चसप्तत्या नराणां निर्दिशेज्जलम् ॥
खातेऽर्धपुरुषे सर्पो दृश्यतेऽञ्जनसप्रभः ।
सुरसं च जलं ज्ञेयं चिरकालप्रवाहितम् ॥

स्निग्धतरूणां याम्ये नरैश्चतुर्भिर्ज्जलं प्रभूतञ्च ।
तरुगहनेऽपि हि विकृतो यस्तस्मात्तद्वदेव वदेत् ॥ ९२
नमते यत्र धरित्री सार्द्धे पुरुषेऽम्बु जाङ्गलानूपे ।
कीटा वा यत्र विनालयेन बहबोऽम्बु तत्रापि ॥ ९३
उष्णा शीता च मही शीतोष्णाम्भस्त्रिभिर्णरैः सार्द्धैः ।
इन्द्रधनुर्म्मत्स्यो वा वल्मीको वा चतुर्हस्तात् ॥ ९४
वल्मीकानां पङ्क्त्यां यद्येकोऽभ्युच्छ्रितः शिरा तदधः ।
शुष्यति न रोहते वा शस्यं यस्याञ्च तत्राम्भः ॥ ९५[1]
न्यग्रोधपलाशोदुम्बरैः समैतैस्त्रिभिर्ज्जलं तदधः ।
वटपिप्पलसमवाये तद्वद्वाच्यं शिरा चोदक् ॥ ९६[2]
आग्नेये यदि कोणे ग्रामस्य पुरस्य वा भवति कूपः ।
नित्यं स करोति भयं दाहञ्च समानुषं प्रायः ॥ ९७
नैर्ऋतकोणे बालक्षयं वनिताभयञ्च वायव्ये ।
दिक्त्रयमेतत्त्यक्त्वा शेषासु शुभावहाः कूपाः ॥ ९८
सारस्वतेन मुनिना दकार्गलं यत्कृतं तदवलोक्य ।
आर्य्याभिः कृतमेतद्वृत्तैरपि मानवं वक्ष्ये ॥ ९९

स्निग्धाः यतः पादपगुल्मवल्ल्यो
निश्छिद्रपत्राश्च ततः शिरास्ति ।
पद्मक्षुरोशीरकुलाः सगुण्ड्राः
काशाः कुशा वा नलिकानलो वा ॥ १००
खर्ज्जूरजम्ब्वर्ज्जुन वेतसाः स्युः
क्षीरान्विता वा द्रुमगुल्मवल्ल्यः ।
छत्रेभनागाः शतपत्रनीपाः
स्युर्नक्तमालाश्च ससिन्धुवाराः ॥ १०१

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1 तथा च सारस्वतः—वल्मीकपङ्क्त्या यद्येकोऽभ्युच्छ्रितस्तदधो जलम् ।
न रोहते शुष्यते वा यत्र सस्यं चतुष्करात् ।
जलं तत्रैव निर्देश्यं भूमौ निःसंशयं तदा ॥

2 ,, ,, ,, —पलाशोदुम्बरौ यत्र स्यातां न्यग्रोधसंयुतौ ।
वटपिप्पलकौ वाथ समेतौ तदधो जलम् ।
करैस्त्रिभिरुदक् चाम्भः शिरां शुभजलां वदेत् ॥

विभीतको वा मदयन्तिका वा
यत्रास्ति तस्मिन् पुरुषत्रयेऽम्भः ।
स्यात् पर्व्वतस्योपरि पर्व्वतोऽन्य-
स्तत्रापि मूले पुरुषत्रयेऽम्भः ॥ १०२[1]
या मौञ्जकैः काशकुशैश्च युक्ता
नीला च मृद् यत्र सशर्करा च ।
तस्यां प्रभूतं सुरसञ्च तोयं
कृष्णाथवा यत्र च रक्तमृद्वा ॥ १०३
सशर्करा ताम्रमही कषायं
क्षारं धरित्री कपिला करोति ।
आपाण्डुरायां लवणं प्रदिष्टं
मिष्टं पयो नीलवसुन्धरायाम् ॥ १०४
शाकाश्वकर्णार्जुनबिल्वसर्जाः
श्रीपर्ण्यरिष्टाधवशिंशपाश्च ।
छिद्रैश्च पर्णैर्द्रुमगुल्मवल्ल्यो
रूक्षाश्च दूरेऽम्बु निवेदयन्ति ॥ १०५
सूर्य्याग्निभस्मोष्ट्रखरानुवर्णा
या निर्ज्जला सा वसुधा प्रदिष्टा ।
रक्ताङ्कुराः क्षीरयुता करीरा
रक्ता धरा चेज्जलमश्मनोऽधः ॥ १०६

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1 तथा च मनुः—गुल्मपादपवल्ल्यः स्युः पत्रैश्चाखण्डितैर्युताः ।
तदधो विद्यते वारि खाते तु पुरुषत्रये ॥
पद्मचुरोशीरकुला गुण्ड्रा काशः कुशोऽथवा ।
नलिकानलखर्ज्जूरजम्बूवेतसकार्जुनाः ॥
यत्र स्युर्द्रुमवल्ल्यश्च क्षीरयुक्ताः फलान्विताः ।
कुर्चभनागनीपाश्च शतपत्रविभीतकाः ॥
सिन्धुवारा नक्तमालाः सुगन्धा मदयन्तिकाः ।
यत्रैते स्युस्तत्र जलं खातेऽम्भः पुरुषत्रये ॥

वैदूर्य्यमुद्गाम्बुदमेचकाभा
पाकोन्मुखोदुम्बरसन्निभा वा ।
भृङ्गाञ्जनाभा कपिलाथवा या
ज्ञेया शिला भूरिसमीपतोया ॥ १०७

पारावतक्षौद्रघृतोपमा या
क्षौमस्य वस्त्रस्य च तुल्यवर्णा ।
या सोमवल्ल्याश्च समानरूपा
साप्याशु तोयं कुरुतेऽक्षयञ्च ॥ १०८

ताम्रैः समेता पृषतैर्व्विचित्रै-
रापाण्डुभस्मोष्ट्रखरानुरूपा ।
भृङ्गोपमाङ्गुष्ठिकपुष्पिका वा
सूर्य्याग्निवर्णा च शिला वितोया ॥ १०९

चन्द्रातपस्फटिकमौक्तिकहेमरूपा
याश्चेन्द्रनीलमणिहिङ्गुलुकाञ्जनाभाः ।
सूर्य्योदयांशुहरितालनिभाश्च याः स्यु-
स्ताः शोभना मुनिवचोऽत्र च वृत्तमेतत् ॥ ११०

एता ह्यभेद्याश्च शिला शिवाश्च
यक्षैश्च नागैश्च सदाभिजुष्टाः ।
येषाञ्च राष्ट्रेषु भवन्ति राज्ञां
तेषामवृष्टिर्न भवेत् कदाचित् ॥१११

भेदं यदा नैति शिला तदानीं
पलाशकाष्ठैः सह तिन्दुकानाम् ।
प्रज्वालयित्वानलमग्निवर्णा
सुधाम्बुसिक्ता प्रविदारमेति ॥११२

तोयं श्रृतं मोक्षकभस्मना वा
यत् सप्तकृत्वः परिषेचनं तत् ।
कार्य्यं शरक्षारयुतं शिलायाः
प्रस्फोटनं वह्निवितापितायाः ॥११३

गिरेरुपरि यत्रान्यः पर्वतः स्यात् ततो जलम् ।
तस्यैव मूले पुरुषैस्त्रिभिर्वाऽधो विनिर्दिशेत् ॥

तक्रकाञ्जिकसुराः सकुलत्था
योजितानि वदराणि च तस्मिन् ।
सप्तरात्रमुषितान्यभितप्तां
दारयन्ति हि शिलां परिषेकैः ॥११४

नैम्बं पत्रं त्वक् च नालं तिलानां
सापामार्गं तिन्दुकं स्याद् गुडूची ।
गोमूत्रेण स्रावितः क्षार एषां
षट्कृत्वोऽतस्तापितो भिद्यतेऽश्मा ॥११५

आर्कं पयो हुडुविषाणमषीसमेतं
पारावताखुशकृता च युतं प्रलेपः ।
टङ्कस्य तैलमथितस्य ततोऽस्य पानं
पश्चाच्छितस्य शिलासु भवेद्विघातः ॥११६

क्षारे कदल्या मथितेन युक्ते
दिनोषिते पायितमायसं यत् ।
सम्यक् छितं चाश्मनि च एति भङ्गं
न चान्यलोहेष्वपि तस्य कौण्ठ्यम् ॥११७

पाली प्रागपरायताम्बु सुचिरं धत्ते न याम्योत्तरा
कल्लोलैरवदारमेति मरुता सा प्रायशः प्रेरितैः ।
तां चेदिच्छति सारदारुभिरपां सम्पातमावारयेत्-
पाषाणादिभिरेव वा प्रतिचयं क्षुण्णां द्विपाश्वादिभिः ॥११८

ककुभवटाम्रप्लक्षकदम्बैः
सनिचुलजम्बूवेतसनीपैः ।
कुरुवकतालाशोकमधूकैर्व-
कुलविमिश्रैश्चावृततीराम् ॥११९

द्वारञ्च नैर्वाहिकमेकदेशे
कार्यं शिलासञ्चितवारिमार्गम् ।
कोशस्थितं निर्विवरं कपाटं
कृत्वा ततः पांशुभिरावपेत्तम् ॥१२०

अञ्जनमुस्तोशीरैः सराजकोशकामलकचूर्णैः ।
कतकफलसमायुक्तैर्योगः कूपे प्रदातव्यम् ॥१२१

कलुषं कटुकं लवणं विरसं
सलिलं यदि वा शुभगन्धि भवेत् ।
तदनेन भवत्यमलं सुरसं
सुसुगन्धिगुणैरपरैश्च युतम् ॥१२२

हस्तो मघानुराधापुष्यधनिष्ठोत्तराणि रोहिण्यः ।
शतभिषगित्यारम्भे कूपानां शस्यते भगणः ॥१२३

कृत्वा वरुणस्य वलिं वटवेतसकीलकं शिरास्थाने ।
कुसुमैर्गन्धैर्धूपैः सम्पूज्य निधापयेत् प्रथमम् ॥१२४

मेघोद्भवं प्रथममेव मया प्रदिष्टं
ज्येष्ठामतीत्य वलदेवमतादिदृष्ट्या ।
भौमं दकार्गलमिदं कथितं
द्वितीयं सम्यग्वराहमिहिरेण मुनिप्रसादात् ॥

बृहत्संहिता ।[1]

अथ कुसुमलताध्यायः ।

फलकुसुमसम्प्रवृद्धिं वनस्पतीनां विलोक्य विज्ञेयम् ।
सुलभत्वं द्रव्याणां निष्पत्तिश्चापि शस्यानाम् ॥१

शालेन कलमशाली रक्ताशोकेन रक्तशालिश्च ।
पाण्डूकः क्षीरिकया नीलाशोकेन सूकरकः ॥२

न्यग्रोधेन तु यवकस्तिन्दुकवृद्ध्या च षष्टिको भवति ।
अश्वत्थेन ज्ञेया निष्पत्तिः सर्वशस्यानाम् ॥३

जम्बूभिस्तिलमाषाः शिरीषवृद्ध्या च कङ्गुनिष्पत्तिः ।
गोधूमाश्च मधूकैर्यववृद्धिः सप्तपर्णेन ॥४

अतिमुक्तककुन्दाभ्यां कर्पासं सर्षपान् वदेदशनैः ।
वदरीभिश्च कुलत्थांश्चिरविल्वेनादिशेन्मुद्गान् ॥५

अतसीवेतसपुष्पैः पलाशकुसुमैश्च कोद्रवा ज्ञेयाः ।
तिलकेन शङ्खमौक्तिकरजतान्यथ चेङ्गुदेन शणः ॥६

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1 एकोनविंशोध्यायः ।

करिणश्च हस्तिकर्णैरादेश्या वाजिनोऽश्वकर्णेन ।
गावश्च पाटलाभिः कदलीभिरजाविकं भवति ॥७
चम्पक कुसुमैः कनकं विद्रुमसम्पच्च वन्धुजीवेन ।
कुरुवकवृद्ध्या वज्रं वैदूर्य्यं नन्दिकावर्त्तैः ॥८
विन्द्याच्च सिन्धुवारेण मौक्तिकं कुङ्कुमं कुसुम्भेन ।
रक्तोत्पलेन राजा मन्त्री नीलोत्पलेनोक्तः ॥९
श्रेष्ठी सुवर्णपुष्पैः पद्मैर्विप्राः पुरोहिताः कुमुदैः ।
सौगन्धिकेन बलपतिरर्केण हिरण्यपरिवृद्धिः ॥१०
आम्रैः क्षेमं भल्लातकैर्भयं पीलुभिस्तथारोग्यम् ।
खदिरशमीभ्यां दुर्भिक्षमर्ज्जुनैः शोभना वृष्टिः ॥११
पिचुमर्द्द नागकुसुमैः सुभिक्षमथ मारुतः कपित्थेन ।
निचुलेनावृष्टिभयं व्याधिभयं भवति कुटजेन ॥१२
दूर्वाकुशकुसुमाभ्यामिक्षुर्वह्निश्च कोविदारेण ।
श्यामालताभिवृद्ध्या वन्ध्या वन्धक्यो वृद्धिमायान्ति ॥१३
यस्मिन्देशे स्निग्धनिश्छिद्रपत्राः संदृश्यन्ते वृक्षगुल्मालताश्च ।
तस्मिन् वृष्टिः शोभना सम्प्रदिष्टा रूक्षैश्छिद्रैरल्पमम्भः प्रदिष्टम् ॥१४[1]

बृहत्संहिता ।[2]

अथवृक्षायुर्व्वेदः ॥

प्रान्तच्छायाविनिर्म्मुक्ता न मनोज्ञा जलाशयाः ।
यस्मादतो जलप्रान्तेष्वारामान् विनिवेशयेत् ॥ १
मृद्वी भूः सर्व्ववृक्षाणां हिता तस्यां तिलान् वपेत् ।
पुष्पितांस्तांश्च मृद्नीयात् कर्म्मैतत् प्रथमं भुवि ॥ २[3]

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1 तथा च पराशरः—अच्छिद्रपत्राः सुस्निग्धाः फलपुष्पसमन्विताः ।
निर्द्दिशन्ति शुभं वृक्षा विपरीतं विगर्हिताः ॥

2 पञ्चपञ्चाशत्तमोऽध्यायः ।

3 तथा च काश्यपः—दूर्वावीरण संयुक्ताः सानूपा मृदुमृत्तिकाः ।
तत्र वाप्य शुभा वृक्षाः सुगन्धिफलशाखिनः ॥

अरिष्टाशोकपुन्नागशिरीषाः सप्रियङ्गवः ।
मङ्गल्याः पूर्वमारामे रोपणीया गृहेषु वा ॥ ३[1]
पनसाशोककदलीजम्बूलकुचदाड़िमाः ।
द्राक्षापालीवताश्चैव वीजपूरातिमुक्तकाः ॥ ४
एते द्रुमाः काण्डरोप्या गोमयेन प्रलेपिताः ।
मूलच्छेदेऽथवा स्कन्धे रोपणीयाः प्रयत्नतः ॥ ५[2]
अजातशाखांश्छिशिरे जातशाखान् हिमागमे ।
बर्षागमे च सुस्कन्धान् यथादिक् प्रतिरोपयेत् ॥ ६[3]
घृतोशीरतिलक्षौद्रविड़ङ्गक्षीरगोमयैः ।
आमूलस्कन्धलिप्तानां संक्रामणविरोपणम् ॥ ७[4]
शुचिर्भूत्वा तरोः पूजां कृत्वा स्नानानुलेपनैः ।
रोपयेद्रोपितश्चैव पत्रैस्तैरेव जायते ॥ ८[5]
सायं प्रातश्च घर्म्मर्त्तौ शीतकाले दिनान्तरे ।
वर्षासु च भुवः शोषे सेक्तव्या रोपिता द्रुमाः ॥ ९[6]

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1 तथा च काश्यपः अशोकचम्पकारिष्ट पुन्नागाश्च प्रियङ्गवः ।
शिरिषोदुम्बराः श्रेष्ठाः पारिजातकमेव च ॥
एते वृक्षा शुभा ज्ञेयाः प्रथमं तांश्च रोपयेत् ।
देवालये तथोद्याने गृहेषूपवनेषु च ॥

2 ,, ,, ,, —द्राक्षातिमुक्तको जम्बूवीजपूरकदाड़िमा ।
कदलीवहुलाशोकाः काण्डरोप्याश्च वापयेत् ॥
अन्येऽपि शाखिनो ये च पुष्पिताः फलितास्तथा ।
गोमयेन प्रलिप्ताश्च रोपणीया विवृद्धये ॥

3 ,, ,, ,, —अजातशाखा ये वृक्षाः शिशिरे तांश्च रोपयेत् ।
जातशाखाश्च हेमन्ते रोपणीया विधानतः ।
सुस्कन्धाः शाखिनो ये तान् प्रावृटकाले तु रोपयेत् ॥

4 ,, ,, ,, —घृतं क्षीरं तथा क्षौद्रमुशीरतिल गोमयैः ।
विड़ङ्गलेपनं मूलात् संक्रामणविरोपनम् ॥

5 तथा च अग्निपुराणे—सम्पूज्य वरुणं विष्णुं पर्ज्जन्यं तत् समारभेत् । ६ । chap. 282

6 ,, ,, —सायं प्रातस्तु घर्म्मर्त्तौ शीतकाले दिनान्तरे ।
वर्षारात्रौ भुवः शोषे सेक्तव्या रोपिता द्रुमाः ॥ ७-८

जम्बूवेतसवानीरकदम्बोदुम्बरार्ज्जुनाः ।
वीजपूरकमृद्वीकालकुचाश्च सदाड़िमाः ॥ १०
बञ्जुलो नक्तमालश्च तिलकः पनसस्तथा ।
तिमिराम्रातकश्चैव षोड़शानूपजाः स्मृताः ॥ ११
उत्तमं विंशतिर्हस्ता मध्यमं षोड़शान्तरम् ।
स्थानात् स्थानान्तरं कार्य्यं वृक्षाणां द्वादशावरम् ॥ १२[1]
अभ्याशजातास्तरवः संस्पृशन्तः परस्परम् ।
मिश्रैर्म्मूलैश्च न फलं सम्यग् यच्छन्ति पीडिताः ॥ १३
शीतवातातपै रोगो जायते पाण्डुपत्रता ।
अवृद्धिश्च प्रवालानां शाखाशोषो रसश्रुतिः ॥ १४
चिकित्सितमथैतेषां शस्त्रेणादौ विशोधनम् ।
विडङ्गघृतपङ्काक्तान् सेचयेत् क्षीरवारिणा ॥ १५[2]
फलनाशे कुलत्थैश्च माषैर्म्मुद्गैस्तिलैर्यवैः ।
शृतशीतपयःसेकः फलपुष्पाभिवृद्धये ॥ १६[3]
अविकाजशकृच्चूर्णस्याढ़के द्वे तिलाढ़कम् ।
सक्तुप्रस्थो जलद्रोणो गोमांसतुलयासह ॥ १७

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1 तथा च काश्यपः—अन्तरं विंशतिर्हस्ता वृक्षाणामुत्तमं स्मृतम् ।
मध्यमं षोड़श ज्ञेयमधमं द्वादश स्मृतम् ॥
,, ,, अग्निपुराणे—उत्तमं विंशतिर्हस्ता मध्यमं षोड़शान्तरम् ।
स्थानात् स्थानान्तरं कार्य्यं वृक्षाणां द्वादशान्तरम् ॥ ८-९

2 तथा च काश्यपः—शाखाविटपपत्रैश्च छायया विहिताश्च ये ।
येऽपि पर्णफलैर्हीना रूक्षाः पत्रैश्च पाण्डुरैः ॥
शीतोष्णवर्षवाताद्यैर्मूलैर्व्यामिश्रितैरपि ।
शाखिनां तु भवेद्रोगो द्विपानां लेखनेन च ॥
चिकित्सितेषु कर्त्तव्या ये च भूयः पुनर्नवाः ।
शोधयेत् प्रथमं शस्त्रैः प्रलेपं दापयेत्ततः ॥
कर्दमेन विड़ङ्गैश्च घृतमिश्रैश्च लेपयेत् ।
क्षीरतोयेन सेकः स्याद्रोहणं सर्व्वशाखिनाम् ॥
तथा च अग्निपुराणे—विफलाः स्युर्घनावृक्षाः शस्त्रेनादौ हि शोधनम् ।
विड़ङ्गघृतपङ्काक्तान् सेचयेच्छीतवारिणा ॥ ९-१०

3 ,, ,, ,, फलनाशे कुलत्थैश्च मांसैर्म्मुद्गैर्यवैस्तिलैः ।
घृतशीतपयःसेक फलपुष्पाय सर्व्वदा ॥ १०-११

सप्तरात्रोषितैरेतैः सेकः कार्य्यो वनस्पतेः ।
वल्लीगुल्मलतानाञ्च फलपुष्पाय सर्व्वदा ॥ १८ [1]

वासराणि दश दुग्ध भावितं ।
वीजमाज्ययुतहस्तयोजितम् ॥
गोमयेन वहुशो विरूक्षितं ।
क्रौडमार्गपिशितैश्च धूपितम् ॥ १९

मत्स्यशूकरवसासमन्वितं रोपितञ्च परिकर्म्मितावणौ ।
क्षीर संयुतजलावसेचितं जायते कुसुमयुक्तमेव तत् ॥ २० [2]
तिन्तिडीत्यपि करोति वल्लरीं व्रीहिमाषतिलचूर्णशक्तुभिः ।
पूतिमांस सहितैश्च सेचिता धूपिता च सततं हरिद्रया ॥ २१

कपित्थवल्लीकरणाय मूला-
न्यास्फोतधात्रीधववासिकानाम् ।
पलाशिनीवेतससूर्य्यवल्ली
श्यामातिमुक्तैः सहिताष्टमूली ॥२२
क्षीरे श्रृते चाप्यनया सुशीते
नालाशतं स्थाप्यकपित्थवीजम् ।
दिने दिने शोषितमर्कपादै-
र्म्मासं विधिस्त्वेष ततोऽधिरोप्यम् ॥२३

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1 तथा च काश्यपः—अजाविकानां द्वौ प्रस्थौ शकृच्चूर्णं च कारयेत् ।
तिलानामाढ़कम् दद्यात् सक्तूणां प्रस्थमेव च ॥
गोमांसशतमेकं स्याद्दद्वे सार्धं सलिलस्य च ।
सप्ताहमुषितैरेतैः सेकं दद्याद्वनस्पतेः ।
स भवेत् फलपुष्पैश्च पत्रैश्चाङ्कुरितैर्वृतः ॥
,, ,, अग्निपुराणे—अविकाजशकृच्चूर्णं यवचूर्णं तिलानि च ।
गोमांसमुदकञ्चैव सप्तरात्रं निधापयेत् ॥
उत्सेकसर्व्ववृक्षाणां फलपुष्पादिवृद्धिदः ॥ ११-१२

2 तथा च अग्निपुराणे—मत्स्याम्भसा तु सेकेन वृद्धिर्भवति शाखिनः ।
विड़ङ्गतण्डुलोपेतं मत्स्यं मांसं हि दोहृदम ।
सर्व्वेषामविशेषेण वृक्षाणां रोगमर्द्दनम् ॥ १३

हस्तायतं तद्द्विगुणं गभीरं
खात्वा वटं प्रोक्तजलावपूर्णाम् ।
शुष्कं प्रदग्धं मधुसर्पिषा तत्
प्रलेपयेद्भस्मसमन्वितेन ॥२४
चूर्णीकृतैर्माषतिलैर्यवैश्च
प्रपूरयेन्मृत्तिकयान्तरस्थैः ।
मत्स्यामिषाम्भः सहितश्च हन्याद्
यावद् घनत्वं समुपागतं तत् ॥२५
उप्तञ्च बीजं चतुरङ्गुलाधो
मत्स्याम्भसा मांसजलैश्च सिक्तम् ।
वल्ली भवत्याशु शुभप्रवाला
विस्मापनी मण्डपमावृणोति ॥२६
शतशोऽङ्कोल्लनसम्भूतफलकल्केन भावितम् ।
एतत्तैलेन वा बीजं श्लेष्मातकफलेन वा ॥२७
वापितं करकोन्मिश्रं मृदि तत्क्षणजन्मकम् ।
फलभारान्विता शाखा भवतीति किमद्भुतम् ॥२८
श्लेष्मातकस्य बीजानि निष्कुलीकृत्य भावयेत् प्राज्ञः ।
अङ्कोल्लविज्जलाद्भिश्छायायां सप्तकृत्वेवम् ॥२९
माहिषगोमयघृष्टान्यस्य करीषे च तानि निक्षिप्य ।
करकाजलमृद्योगेऽन्युप्तान्यह्ना फलकराणि ॥३०
ध्रुवमृदुमूलविशाखा गुरुभं श्रवणस्तथाश्विनीहस्तम् ।
उक्तानि दिव्यदृग्भिः पादपसंरोपणे भानि ॥३१[1]

1 तथा च अग्निपुराणे—ब्रह्मीयाद्रोपयेद् वृक्षान् द्विजं चन्द्रं प्रपूज्य च ।
ध्रुवाणि पञ्चवायव्यं हस्तं प्राजेशवैष्णवम् ॥३
नक्षत्राणि तथा मूलं शस्यन्ते द्रुमरोपणे
प्रवेशयेन्नदीवाहान् पुष्करिण्यान्तु कारयेत् ॥४
हस्ता मघा तथा मैत्रमाद्यं पुष्यं सवासवम् ।
जलाशयसमारम्भे वारुणञ्चोत्तरात्रयम् ॥५

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LIST OF PLANTS[1]

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